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# FOREWORD

Dear Authors, dear Readers!

We are bringing you the new issue of our scientific journal that contains very interesting topics carefully selected by the Editors. Our authors deal with such up-to date issues as the role of collegial relationships from the perspective of novice teachers, gamification, which is a current requirement in education, parental involvement in education in relation to student achievement, mathematical reasoning in 8th grade students, or promoting the development of academic writing in students, but also a new scale for measuring giftedness is presented. The composition of the authors is international again proving that Acta Educationis Generalis welcomes authors from all parts of the world. Finally, judge for yourself.

The first paper is from Hungary by András Buda and Csilla Pesti and is entitled Gamification Solution in Teacher Education. Gamification, as the authors state, should be included in teacher education courses because first-hand experience can not only increase the intention to use the method in the future but can also influence the attitude of prospective teachers towards innovative teaching methods in a positive direction. Their results show that gamification can be an effective alternative to traditional education. It can increase student satisfaction, motivation and develop a broader range of competences, but it requires precise conditions and ownership.

A Romanian author Claudia - Nicoleta Paun, entitled her study The Parental Impact on Education: Understanding the Correlation between the Parental Involvement and Academic Results. This article aims to examine the impact of parental contribution on their children's scholastic accomplishments, concentrating on the statistical correlation between the two. Understanding the impact of parental education on children's academic performance is essential for educators, policy makers, and families alike, as it highlights the importance of fostering an educationally rich environment for children to thrive.

Şeyda Zengin and Emrullah Erdem, researchers from the Turkish university environment, deal with the following theme: A Detailed Examination of 8th Grade Students' Mathematical Reasoning Process. This study aims to reveal the mathematical reasoning process of 8th-grade students and the reasoning indicators they use in this process. The authors of the research study found that mathematical reasoning performances of the participants were generally at low and medium levels. They also point out that - when evaluating the solutions to questions that require mathematical reasoning - it is important to interview students and find out how they reached those solutions. Students must be asked to justify their reasoning while solving problems that require mathematical reasoning.

The Need for Academic Writing in Albania is the title of the paper by Klodjana Skendaj from Albania. The study aims to identify students' perceptions of academic writing and the importance of clear structure and guidelines in academic writing templates. The research collected data through 253 online questionnaires from students of private and public higher education institutions in Albania, revealing that students lacked adequate skills in primary writing forms and were unaware of the steps required to use resources. The study found that over half of the students surveyed did not study academic writing, which was mainly offered as an elective course for the undergraduate level. Academic writing should be mandatory for every degree program, the author suggests, and also work with disciplinary professors and linguists to improve existing curricula and create opportunities for students to express their critical thinking through writing. The survey revealed that students from public and non-public higher education institutions lack basic writing skills, prefer internet guidance over professors' assistance, struggle with paraphrasing, summarizing, and referencing, and lack academic integrity.

Ethiopian teachers' attitudes towards assessment in language teaching are dealt with by Gebisa Ayana Derseh, Sherif Ali Ahmed and Rufael Disasa Warabu in the study Implementing Competency-Based Language Teaching Assessment and Achievement of Competency in Speaking Skills at Grade Four. What is the situation in this field in Ethiopian schools and how is it different from European schools? The results showed that there was limited implementation of Competency-Based Language Teaching assessment in speaking skills. The findings also showed that the teachers' awareness of the purpose of the speaking skills assessment in Competency-Based Language Teaching was below average. The study also found that students scored below satisfactory in speaking skills competencies, indicating that they did not achieve the intended level of mastery. The study recommends that teachers implement Competency-Based Language Teaching assessments practically in spoken language instruction, and promote learners based on the mastery of competency at each level.

The social capital perspective in the process of school – family cooperation in crisis situations is addressed by Tshegofatso Portia Motsumi and Shuti Steph Khumalo from South Africa who entitled their study Constraints, Contradictions

and Challenges Regarding Cooperation of Parents during Covid-19: A Social Capital Perspective. The educational development of children during the Covid -19 pandemic was adversely affected by the hard lockdown and stringent restrictions that followed the outbreak of the pandemic. The role that parents had to play in the education of their children needed to evolve to meet the new demands. Amongst the key findings that emerged from the study were serious challenges regarding parents' cooperation during the Covid-19 pandemic, namely, communication challenges between the school and home, increased learner absenteeism, and failure by learners to do schoolwork. Finally, the study also found that some parents were disinterested and disengaged from the schools. This study is significant because it provides epistemological insights and understanding of the challenges schools experienced during the Covid-19 pandemic and provided findings which are critical for theory, practice and policy to the education systems regarding future disasters.

Two Turkish authors Şeyda Aydın-Karaca and Şule Kılınç focused on gifted students and tried to find solutions for teachers in the study Development of a Teacher Rating Scale for Giftedness (TRSG). The study is based on the idea that intellectual giftedness is an important student characteristic that teachers need to take into consideration when designing education programs and providing educational support to these students. The purpose of the study is to develop a teacher rating scale (TRSG) for nominating the children to gifted education programmes. From the study, it can be concluded that the results on the validity and reliability supported the notion that the scale is appropriate for being used for nomination purposes by teachers in gifted education programmes. Its limited number of items, quick application, and simple scoring procedures make it advantageous for use in various contexts.

Dear Readers, as you can see, the themes are original, topical, and they motivate to think, as well as to compare studies between countries or continents, but also to get familiar with the reality in various cultural educational environments, which was the intention of the Editorial Office of Acta Educationis Generalis.

> Viola Tamášová Editor-in-Chief

### **Gamification Solution in Teacher Education**

### András Buda - Csilla Pesti\*

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#### Abstract:

*Introduction:* Achievements of students in higher education are influenced by several factors. From the students' perspective a key factor is the motivation, without which it is extremely difficult to make any progress, and from the teachers' perspective the conservative methodological culture is primarily responsible for the fact that students are often uninterested, apathetic, and therefore they do not meet the expected requirements at all or only at a low level.

**Methods:** In a pilot project we gamified the evaluation of a teacher education course at the University of Debrecen. We asked the participating students (26 students) at the beginning and at the end of the semester for their opinion on the evaluation system used. For this purpose, we used a short questionnaire that we compiled, which included both closed and open questions.

**Results:** At the beginning of the semester, this form of assessment was very new to most students, and the difficulty of the assessment was judged differently by the course participants. In the end, students completed an average of nearly 5 (4.67) of the nine optional tasks. There were some tasks that were rated as both enjoyable and developmental by many, but there were also some that were barely chosen. Overall, the vast majority rated gamification as good or better than traditional assessment based on completion of compulsory tasks.

**Discussion:** Gamification should be included in teacher education courses because first-hand experience can not only increase the intention to use the method in the future but can also influence the attitude of prospective teachers towards innovative teaching methods in a positive direction.

*Limitations:* The size of the sample and the content of the optional tasks used do not allow the generalisation of the results to the whole population.

*Conclusions:* Our results show that gamification can be an effective alternative to traditional education. It can increase student satisfaction, motivation and develop

<sup>\*</sup> András Buda, University of Debrecen, Debrecen, Hungary; buda.andras@arts.unideb.hu Csilla Pesti, Károli Gáspár University of the Reformed Church in Hungary, Budapest, Hungary; pesti.csilla@kre.hu

a broader range of competences, but it requires precise conditions and ownership. It would be useful to investigate the results of gamification assessment in other courses and how students' perceptions of the method change in courses where they are no longer unfamiliar with it.

**Key words:** gamification, methodological innovation, higher education, teacher education.

#### Introduction

The lecture has always been the dominant form of teaching in higher education, and for a long time it was the only form of information transfer that was aimed at many people (Péntek & Hantz, 2020). Its central role began to change very slowly due to continuous development - the various inventions (including the printing of books) - but this monologic teaching method has remained the dominant element of university education to this day.

However, this is not the sole responsibility of the educators. It is the way they were taught, the way they are used to, the way they are almost exclusively familiar with. They have not seen many other examples and have generally not acquired any other teaching skills. In fact, university educators are not generally expected to have any pedagogical or methodological knowledge when they start working in higher education, and in most institutions, they are not given any training of this kind afterwards. Therefore, the majority of higher education teachers do not have any pedagogical, psychological or methodological skills. Their work is based on patterns and techniques that they know and are used to, even though the effectiveness of the old methods is nowadays decreasing (Csillik et al., 2016).

The main reason for this decline in efficiency is that young people in the information society have a different attitude to learning and knowledge than previous generations. Students of the 21st century attach less importance to obtaining information within school, for them "extracurricular resources and online knowledge bases are at least as important as lectures given by their teachers in front of a blackboard" (Ollé, 2010, p. 22). The first place they turn for an answer to a question is the internet, where they can access an unimaginable amount of information in a matter of seconds. As a result, they learn more easily and with more difficulties at the same time than students of the last century. Easier, because they have access to a wealth of information and a rich resource base, but the ease of access often gives them a sense of 'knowing it all', which is essentially false, and as a result they find it much more difficult to commit information to their own internal memory.

This dichotomy does not, of course, affect everyone in the same way, especially as the mass nature of higher education means that students' values, motivation (Ambrose et al., 2010), prior knowledge and skills vary widely. In addition, many of these characteristics change and develop enormously over the course of their studies, further differentiating an already heterogeneous student population. Many factors could therefore induce a more motivating, diverse, and modern teaching-learning process.

#### 1 Methodological changes

One of the barriers to change is the tendency of many higher education educators to treat students with a truly diverse set of characteristics as a homogeneous mass. They argue that the large number of students means that there is no opportunity to get to know them and develop personal relationships. This in turn means that individual characteristics cannot be taken into account, differentiation is not possible, and, in addition, as they say: they must make progress with the curriculum. This is why, as a result of retaining the conservative university approach, many university educators give (frontal) lectures even during practical courses and seminars; therefore, instead of developing students' skills, they predominantly focus on content and transferring knowledge. The aim of education is not only to impart knowledge, but also to develop the students' competences, thinking and opinion-forming. However, the classical method, the (frontal) lecture in its traditional sense, has the exact opposite effect, since an engaging, excellent lecturer, while maintaining interest, leads the audience through the 'thought process' he has 'drawn' in a clear and easy-to-follow manner. In this case, however, the audience has neither the time nor the opportunity to reflect, even though the line of thought presented by the speaker could take a completely different turn if other aspects and arguments were introduced.

Of course, it is not easy to give an engaging performance, not everyone can do it. This statement is backed up by a study in which the educators themselves were asked what they needed to improve. The interviewees identified lecturing skills as the main area for improvement, along with some other methodological elements (e.g. motivating students, differentiation, use of ICT tools and web applications) (Csillik et al., 2016). Perhaps this insight plays a role in the fact that, despite their lack of preparation, more and more educators are trying to generate interest and enthusiasm in the topic they are working on (Hughes & Overton, 2009).

A group of educators, abandoning the traditional monologue method, mixes lecturing with other teaching methods in an attempt to get students to interact in some way. This is why more and more solutions are being used in classrooms (e.g. anonymous polls, mini-tests, voting system competitions) to activate students and thus make a session more enjoyable. Another group of educators

aims to achieve this goal primarily by changing the traditional forms of teaching organisation rather than the methods. More and more places are introducing online courses, blended or hybrid solutions to change the conservative, teacher-centred approach, and put the learner at the centre. One of the solutions used is the "flipped classroom" method, which has gained popularity over the last decade.

Most people associate the method with Jonathan Bergmann and Aaron Sams (2012), who are considered to be the first documenters and developers of the method, although some (e.g. Hartyányi et al., 2018; Aydemir, 2019) date its emergence to the early 19th century. The essence of the "flipped classroom" is that it replaces the work students do in class and at home. During its implementation, the transfer of knowledge takes place in an active extra-curricular activity at home, mostly in a digital environment (instead of traditional university lectures, where students are mostly in a passive role). This also means that learning is largely relocated outside the classroom.

One possible way of implementing the flipped classroom, which can be easily transformed into practical activities, can be divided into four blended phases that follow each other in a cyclical manner (Ollé et al., 2017). In the first phase, the preparation of the topic and the students' attunement take place in the classroom in a present form. This is followed by the learning of the content made available by the educator in a digital learning environment. This content is typically a short video, which may be a lecture by the educator or material from some other source, which may be supplemented by digital content in other formats. The educator usually supports this process in some way. The third phase also takes place outside the classroom. The students then interpret and process the information individually, often using it to create a product. The final phase of the cycle takes place again in the classroom, where questions are discussed together, the knowledge acquired is deepened, practical applications are made, and the products are presented. The method thus alternates between distance learning outside the classroom and traditional contact learning, making it perhaps the most popular form of blended learning.

By alternating the phases, the time spent in the classroom becomes much more valuable, as active, activity-based learning in the classroom not only helps to organise and retain new knowledge - thus supporting better understanding of the material and long-term retention of acquired knowledge - but also allows educators to better respond to students' needs through more intense, direct interactions. This can be particularly beneficial for lower-performing students who might not otherwise seek help (Goodwin & Miller, 2013). It also reduces performance gaps through personal feedback (Supiano, 2018).

While the benefits and the experience during the emergency distance education forced by the pandemic have led to the rise in popularity of the flipped classroom

worldwide, its use also faces several challenges. One problem is that the method is likely to be completely unfamiliar to most students. Moreover, it significantly increases their responsibility for the success of the learning process and requires a high degree of autonomy, i.e. an attitude and behaviour that was not, or only very rarely, required in the past. For teachers and educators, the changed teaching role may also be unusual, as the dominant activity will no longer be the transfer of knowledge, but the support and monitoring of student activities in the classroom and online. Overall, however, according to the 2017 Horizon Report of the New Media Consortium (Becker et al., 2017), blended solutions are expected to be one of the fastest growing educational innovations in the near future.

#### 2 Gamification

Another popular methodological innovation of our time is gamification, i.e. the application of different game elements in some non-game environment (Deterding et al., 2011). There are several different theories about the origins of gamification. Some argue (e.g. McCormick, 2013; Werbach, 2015; Khaitova, 2021; Berezinska, 2022) that the term was first used in the 1980s by game developer Richard Bartle, who was asked to modify an online platform called Multi-User Dungeon (MUD) in order to make it more attractive to users. However, others (e.g. Marczewski, 2013; Burke, 2014; Furdu et al., 2017) argue that the term was first used in 2002 by Nick Pelling in the context of making electronic devices faster and more enjoyable with game-like user interfaces.

In the business world, however, game-based solutions and methods have been used for much longer to increase sales effectiveness. This has been done by motivating and engaging employees and consumers. These solutions were the early forerunners of the various point accumulation and loyalty programmes. (True, they were not called gamification at the beginning.)

The first loyalty reward schemes appeared in the early 20th century, a notorious one was the Green Stamps (Fox, 1968) introduced by S&H (Sperry & Hutchinson), which worked by giving customers a number or denomination of small green stamps proportional to the amount they spent at participating shops and petrol stations. The stamps were collected in albums and could later be redeemed for products from a catalogue. This temptation was a great attraction at the time and the system survived for a long time. Its heyday came in the 1950s and 1960s, when Americans exchanged their albums - sometimes filled with thousands of stamps - for various household items (Moran, 2018). The extent of its success is shown by the fact that many chain stores still use a similar solution today.

In addition to marketing management, gamification has also long been used in human resource management to motivate (Zichermann & Linder, 2013), with the

Scouting movement providing an early example of another widely known application of gamification, alongside Green Stamps. Robert Baden-Powell laid the foundations of the movement's system in his 1908 work, in which the Scouts rewarded their members with badges in recognition of their achievements in various fields. Scouts may be awarded badges for the acquisition of a skill, for proficiency in an activity, for acting in accordance with the principles of the organisation, or for participation in a special event. The system is therefore very motivating for members, as the large number of badges worn on the Scout uniform is a sign of outstanding achievement.

The origins of gamification are thus both economic and human, yet it is only a few years since education systems started to explore and exploit its potential (Dichev & Dicheva, 2017; Faiella & Ricciardi, 2015).

But is this really the case? Is gamification really a novelty of the last decades? After all, the most common elements of games, rewards, points, badges, leaderboards, level progression, have long been present in education. Indeed, pupils are rewarded for desirable behaviour and punished for undesirable behaviour. Initially, they receive stars or stamps for completing tasks, which are later replaced by scores, which result in grades ('badges'), and those who perform well are 'promoted' at the end of each academic year. However, despite the obvious game elements, school does not generally attract students in the way that games (especially digital games) do, with most students describing school and school-related activities as a non-game experience.

Indeed, game elements alone do not evoke the same emotions in pupils as, for example, a video game. Games induce a range of powerful, positive emotions: they entertain, they create pleasure, curiosity, they challenge the players in new (often increasingly difficult) ways (Lazzaro, 2004). It could be argued that these emotions are present in an enjoyable lesson from a good teacher, but what makes a significant difference between the emotional impact of a lesson and a game is the issue of how to deal with failure. The game requires a lot of repeated experimentation, so the player sees failure as a natural consequence of learning something new about the game almost every time (Gee, 2008). In fact, for many games, it is the only way to learn how to play the game, because you have to fail many times to move on. At the same time, you can try as many times as you like to solve a problem, and usually at very little risk. In school, however, there are few opportunities for students to try, and when they do, the stakes are often high. Thus, unlike games, the education system generally offers very limited opportunities for repeated failure (Lee & Hammer, 2011).

School games are also at a disadvantage compared to games for other reasons. One such element is voluntarism, which, according to Katie Salen and Eric Zimmermann (2003), is one of the most important features of games. In fact, the players of a game decide of their own free will to participate in the game, but this

kind of freedom cannot be ensured in school. There, whether it is a 13+1 quiz or some kind of gamification assessment solution, pupils (sometimes) must play, they cannot remain passive and start reading or surfing the Internet, for example, just because they feel more like it.

The third important difference between games and school tasks is the frequency and speed of feedback. Games provide continuous and immediate feedback, thus enhancing intrinsic motivation (Hamari, 2013; Santos-Villalba et al., 2020), which is necessary to make the game enjoyable. Indeed, the player needs to be aware of his/her position in the game. For example, he/she needs to know how much time is left, how many points he/she has accumulated, or even how he/she has performed compared to other players. This feedback should be immediate and easy to understand, as it is an important benchmark. However, this is not usually the case in education, where the correction and marking of assignments and papers submitted can take days or even weeks, and feedback on the work done is often quite incomplete. Gamification assessment, however, differs significantly from traditional education in terms of feedback. The difference lies in the fact that there is usually not (or not only) one final task to be completed by the students, but many smaller tasks of different types, which can be chosen from and quickly assessed by the teacher, thus shortening the feedback time considerably. The assessment is therefore not a one-off exercise, but a continuous one, with a much smaller amount of work per task and alternatives allowing students to choose their own sub-objectives. Moreover, by completing a different task, the final result can be improved, so students do not have to worry so much. Smaller tasks mean a more even workload, and if the tasks are varied (not too difficult but not too easy), it is easier to maintain students' interest.

Even the simplest points and level system can have a very strong positive effect on the students and teachers involved (Sheldon, 2012). This effect is due to the points earned by completing each task, creating a sense of growth and progress (Fromann & Damsa 2016), as the overall score keeps increasing, bringing them closer to the goal they are trying to achieve. Smaller progress is also rewarded, so that they have a positive experience more often and therefore tend not to feel so burdened by the tasks ahead. They become more aware of their own activities, mistakes, and areas for improvement and, over time, will be able to set themselves goals more consciously. In addition, performance on individual tasks provides teachers with more detailed feedback, allowing them to monitor their students' progress and development, identify problem areas and tasks more accurately, and better understand individual preferences and abilities.

We consider these benefits to be of paramount importance, which is why we have adapted the assessment of a teacher education course at the University of Debrecen using a gamification solution.

#### **3** Gamification in the evaluation of a university course

Most university courses end with an end-of-semester assessment (exam or assignment), or there may be two or three mid-semester assignments, the results of which are used to award a grade. These are almost always fixed assignments and fixed occasions, requiring a one-off or limited student activity and rather limited feedback (especially in the case of colloquia). To avoid this, in the spring of 2022, as part of a pilot experiment, we introduced a point-based assessment system for the course "ICT in Education" for student teachers. The students could choose from a variety of tasks according to their goals, needs and competences, so that they could shape their individual learning path, workload and time schedule. We did not only assign tasks with a deadline at the end of the semester, but there were also tasks that had to be completed continuously, and some tasks where the deadline was determined individually in the beginning of the semester (for example, a micro teaching activity where the "students" had to use a mobile device). The primary aim of the tasks was to develop the digital and problem-solving competences of future teachers, and to give the participants experience in the educational use of digital tools and software that can play an important role in the teaching and learning activities. Personal experience can significantly help future teachers to develop their methodological repertoire and to apply the possibilities they have learned in a relevant way to their own practical work (González-Fernández et al., 2022; Sajinčič et al., 2022).

The implementation of the tasks was based on the theoretical content of the course lessons and on the activities and exercises carried out there. For example, in one of the lessons, students were introduced to the formal requirements of a good presentation and were given the optional task of correcting formally incorrect slides. The involvement was also enhanced by the fact that the students could even choose the slides to be corrected themselves, based on principles discussed and checked in advance. The participants could choose to present an application suitable for teaching, or they could create a classroom illustration (using any software) that deliberately contained errors (which is an excellent way to attract the attention of students). Students could interview an in-service teacher working in public education about how he/she and his/her colleagues use ICT tools and solutions in their work, what advantages, disadvantages, difficulties they experience, etc. As an optional assignment, they could also complete a MOOC training course related to teaching or prepare a lesson plan enriched with ICT ideas and methods. The latter task was of higher value if the lesson material was also linked to a special day, but the connection did not have to be self-evident. For example, they could prepare a lesson plan with the topic of the World Day of Birds and Trees or the World Water Day for a literature or history lessons. There was only one task that was compulsory for everyone, and that was to know the software of an interactive whiteboard. It had to be proven

that the students were familiar with the features of the software and could individually create tasks with the software that could be used to enrich lessons. In order to complete the task, they were not only allowed to choose from the 4-5 software programs they had tried out in the course but were also completely free to choose which program they wanted to use.

Students were given a predetermined number of points for each task, depending on the quality of their performance, and the sum of these points was used to calculate the final grade for the course, the points for which were also known in advance. The total score could also be increased by attending classes, as extra points were awarded to those who did not, or only partially, use the three absences laid down in the study regulations.

#### **4** Experiences, student opinions

The opinions of the students (26 students) who participated in the course were mapped at the beginning and at the end of the semester with a short questionnaire about the experimental gamification assessment system. At the beginning of the semester, most students were unfamiliar with this form of assessment, with an average of around eight points on a 10-point<sup>1</sup> Likert scale (and no one marked a value less than 5)<sup>2</sup>. However, the difficulty of obtaining a grade using the assessment system was judged very differently by the course participants, as indicated by the average value of  $5.53^3$  and the fact that all scale values were marked by the respondents.

At the start of the course, the interactive whiteboard assignment and the completion of a MOOC course were considered the most novel and, perhaps as a result of this, the most difficult, while the interview and interactive whiteboard assignments were considered the most interesting. The latter task thus elicited the most reactions, which may have been due to the fact that slightly more than half of the students had already encountered an interactive whiteboard in class during their previous studies (mainly in secondary school) and the others had generally heard something about this technical tool. Thus, several had their own experience or ideas about the use of the tool in the classroom.

The end-of-semester data showed that, on average, students completed nearly 5 (4.67) of the nine optional tasks. The most common task was to create an illustration with errors, but many also created lesson plans and/or digital escape rooms. Some students completed only two tasks, but there were also examples of

<sup>&</sup>lt;sup>1</sup> 10 = very innovative ... 1 = not innovative at all

<sup>&</sup>lt;sup>2</sup> However, this high value also indicates that despite the digital progress and methodological development, only very few people apply gamification solutions in public education.

<sup>&</sup>lt;sup>3</sup> 10 = very difficult ... 1 = not difficult at all

students completing six tasks. These figures are even more informative when you know that it was possible to achieve the point threshold for an A+ grade by completing up to three tasks to a good standard - all of which were worth high points. On the other hand, if someone had done all the assignments to an excellent standard and never missed a class, the total theoretical points obtained were nearly three times as the lower point threshold for an A+ grade, so students could really choose between assignments and tailor the practical mark for the course to their level of need.

Looking back at the assignments at the end of the course, students rated the micro-teaching and the interactive whiteboard assignment as the most enjoyable work. The former was liked by both the students who held the micro-teaching and those who "participated" in it, while the latter was attractive because of the great freedom (they could use optional software, create an assignment in any subject, for any age group, with any didactic purpose). These two tasks were not only considered by respondents as enjoyable, but also as self-developing, as was the lesson plan.

As a final question, we asked the participating student teachers, if they could choose which form of assessment (traditional or gamified) they would prefer. About a third of the respondents would have chosen gamification, describing it as more varied, enjoyable and constructive, but some respondents said that "we were given more freedom; we could use our creativity instead of a stale content". More than half of the students considered both approaches equally good: "In different ways, but both forms of assessment are motivating." However, there were also some negative comments: "The point-based method was not bad, although sometimes it would have been easier if I had just known that there was a test coming, I was going to do it and that was it. So a lot of times I was lost doing the assignments." The latter factor could certainly have played a role in why some (3) would choose the traditional form of assessment, but the exact reasons were not known as none of them gave reasons for their choice.

#### Conclusions

The various gamification approaches have not yet been widely adopted in public education and higher education, despite the fact that most studies published in the teaching-learning context have found the impact of gamification to be essentially positive (Al-Azawi et al., 2016). The papers mainly highlight that it aims to engage learners in an interactive system that motivates them to perform different activities (Gómez-Carrasco et al., 2019) and thus increase their engagement (Huang & Soman, 2013). Although a higher motivation level gives students more positive experiences, this does not necessarily guarantee a more permanent retention and storage of knowledge (Carrillo et al., 2019; Montenegro-Rueda et al., 2023; Siripipatthanakul et al., 2023). However, there is

no doubt that varied tasks allow students to develop a much wider range of competences than traditional solutions (de Sousa Mendes et al., 2022). As well-designed gamification systems offer multiple pathways to success, they allow students to select their own sub-goals within a larger task. Less complex tasks, on the other hand, provide students with a more optimal workload that is better adapted to their individual needs, and their assessment and rewarding provide continuous feedback (Richter et al., 2015). In our pilot university course, we also provided students with a number of optional tasks to gain a practical grade, and the vast majority of students considered this solution as good or better than the compulsory tasks.

It is important to stress, however, that gamification is not a universal panacea that is a simple, ready-made solution to every problem (de la Peña, et al., 2021)! It is essential that "the teacher can use it and the student understands it", as one of the participating students reported it. It is therefore essential to establish a clear and unambiguous set of rules for the implementation of such an assessment system, in which the tasks, the deadlines and the associated rewards are clearly and predictably defined and made transparent. However, the creation of such a system is not an easy task and requires continuous refinement and modification in the course of new uses, and it is always advisable to gather feedback on the experience.

Another criticism of the method is that it uses extrinsic motivational tools, as students perform tasks in order to win rewards. Indeed, it is questionable how motivated students would be to do the tasks without rewards, and how far the rewards for tasks that become more difficult over time can be increased and what the lack of rewards triggers (Zichermann & Cunningham, 2011). But this is no different in the case of traditional solutions, as many students learn and prepare papers only for the sake of grades. However, as in traditional frameworks, wellexecuted gamification can achieve attitudinal change that persists even after the external reward system has been abandoned (McGonigal, 2010). It should also be remembered that "knowledge and skills acquired through external stimuli increase the sense of competence, proficiency, which can help the learner to increase his/her self-confidence and, in a given area, increase his/her chances of facing challenges independently" (Juhász, 2020, p. 41). Of course, this confrontation must also be learned, and learners must also accept that the freedom offered by the optionality of tasks implies that they will have much greater responsibility for their results. In fact, they will probably work more, as gamification only allows students with low levels of demand to work less. For the majority, on the other hand, it certainly means more work, but the optionality of the tasks allows for more varied and enjoyable activities than before, which means that students may not feel like they are learning.

From the teacher's point of view, the construction and operation of a gamification system, the continuous and rapid assessment of tasks, also involves much more work than the traditional transfer of knowledge and subsequent accountability (Manzano-León et al., 2022). There is no question that it is considerably easier to deliver the material in a (frontal) lecture form and then to check the extent of mastery with closed questions, but the developmental impact of the two methods on students is also significantly different. While the traditional solution has only a small impact on the processes that take place in the minds of the students, gamification develops their knowledge acquisition and problem-solving skills, their creativity, and their flexible thinking. We believe this difference is worth the change, the extra work invested.

#### References

- Al-Azawi, R., Al-Faliti, F., & Al-Blushi, M. (2016). Educational gamification vs. gamebased learning: Comparative study. *International Journal of Innovation*, *Management and Technology*, 7(4), 132-136. Retrieved from http://www.ijimt.org/ vol7/659-CM932.pdf
- Ambrose, S. A., Bridges, M. W., DiPietro, M., Lovett, M. C., & Norman, M. K. (2010). *How learning works: Seven research-based principles for smart teaching*. San Francisco: John Wiley & Sons.
- Aydemir, E. (2019). The impact of flipped classroom approach on the reading and writing achievement, self-regulated learning, and classroom interaction of pre-service English teachers (Unpublished doctorate dissertation). Istanbul: Bahçeşehir University. Retrieved from https://acikbilim.yok.gov.tr/bitstream/handle/ 20.500.12812/591653/yokAcikBilim\_10271563.pdf?sequence=-1
- Baden-Powell, R. (1908). Scouting for Boys. A Handbook for instruction in good citizenship. London: Horace Cox.
- Becker, S. A., Cummins, M., Davis, A., Freeman, A., Hall, G. C., & Ananthanarayanan, V. (2017). NMC Horizon Report: 2017 Higher Education Edition. Austin, Texas: The New Media Consortium.
- Berezinska, O. (2022). Gamification and its role in the educational process. In Interdisciplinary research: scientific horizons and perspectives. Collection of scientific papers «SCIENTIA» with Proceedings of the III International Scientific and Theoretical Conference no. 2 (pp. 89-91). Vilnius: European Scientific Platform. https://doi.org/10.36074/scientia-06.05.2022
- Bergmann, J., & Sams, A. (2012). Flip Your Classroom. Reach Every Student in Every Class Every Day. International Society for Technology in Education. Washington/Alexandria: ISTE/ASCD. Retrieved from https://www.rcboe.org/cms/ lib/ga01903614/centricity/domain/15451/flip\_your\_classroom.pdf
- Burke, B. (2014). *Gamify: How Gamification Motivates People to Do Extraordinary Things.* Brookline, MA: Bibliomotion.
- Candel, E. C., de-la-Peña, C., & Yuste, B. C. (2023). Pre-service teachers' perception of active learning methodologies in history: Flipped classroom and gamification in an

e-learning environment. *Education and Information Technologies*, 2023, 1-23. https://doi.org/10.1007/s10639-023-11924-0

- Carrillo, D. L., García, C. A., Laguna, T. R., Magán, G. R., & Moreno, J. A. L. (2019). Using gamification in a teaching innovation project at the University of Alcalá: A new approach to experimental science practices. *Electronic Journal of e-Learning*, 17(2), 93-106. Retrieved from https://files.eric.ed.gov/fulltext/EJ1220168.pdf
- Csillik, O., Daruka, M., & Sass, J. (2016). Képzett képzendők képzetlen képzők. In K. Fodorné Tóth (Ed.), Tudás, társadalom, felelősség. Felsőoktatás és társadalmi felelősség: Tudástranszfer partnerségi akciókban és elkötelezettségben (pp. 86-94). Pécs: MELLearN - Felsőoktatási Hálózat az Életen át tartó tanulásért Egyesület.
- de la Peña, D., Lizcano, D., & Martínez-Álvarez, I. (2021). Learning through play: Gamification model in university-level distance learning. *Entertainment Computing*, 39, 100430. https://doi.org/10.1016/j.entcom.2021.100430
- de Sousa Mendes, D., de Lima, M. R., & de Freitas, T. A. R. (2022). Gamification, "I have no idea what it is": A study in the physical education initial teacher training. *ALTERIDAD. Revista de Educación*, 17(1), 12-23.
- Deterding, S., Dixon, D., Khaled, R., & Nacke, L. E. (2011). From game design elements to gamefulness: Defining 'Gamification'. In *Proceedings of the 15th international* academic MindTrek conference: Envisioning future media environments (pp. 9-16). https://doi.org/10.1145/2181037.2181040
- Dichev, C., & Dicheva, D., (2017). Gamifying education: What is known, what is believed and what remains uncertain: A critical review. *International Journal of Educational Technology in Higher Education*, 14(9). https://doi.org/10.1186/ s41239-017-0042-5
- Európai Bizottság (2011). Az iskolai lemorzsolódás felszámolása: Az Európa 2020 stratégia sikerének előmozdítása. Brussels: COM 18.
- Faiella, F., & Ricciardi, M. (2015). Gamification and learning: A review of issues and research. Journal of E-Learning and Knowledge Society, 11(3), 13-21. https://doi.org/10.20368/1971-8829/1072
- Fox, H. W. (1968). *The Economics of Trading Stamps*. Washington, DC: Public Affairs Press.
- Fromann, R., & Damsa, A. (2016). A gamifikáció (játékosítás) motivációs eszköztára az oktatásban. Új pedagógiai szemle, 66(3-4), 76-81.
- Furdu, I., Tomozei, C., & Kose, U. (2017). Pros and cons gamification and gaming in classroom. Broad Research in Artificial Intelligence and Neuroscience, 8(2), 56-62. https://doi.org/10.48550/arXiv.1708.09337 2017
- Gee, J. P. (2008). Learning and Games. In K. Salen (Ed.), *The Ecology of Games: Connecting Youth, Games, and Learning.* The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning. Cambridge: The MIT Press, 21-40. 10.1162/dmal.9780262693646.021
- Gómez-Carrasco, C. J., Monteagudo-Fernández, J., Moreno-Vera, J. R., & Sainz-Gómez, M. (2019). Effects of a gamification and flipped-classroom program for teachers in training on motivation and learning perception. *Education Sciences*, 9(4), 299. https://doi.org/10.3390/educsci9040299

- González-Fernández, A., Revuelta-Domínguez, F. I., & Fernández-Sánchez, M. R. (2022). Models of instructional design in gamification: A systematic review of the literature. *Education Sciences*, 12(1), 44. https://doi.org/10.3390/educsci12010044
- Goodwin, B., & Miller K. (2013). Evidence on flipped classrooms is still coming in. *Educational leadership*, 70(6), 78-80.
- Hamari, J. (2013). Transforming homo economicus into homo ludens: A field experiment on Gamification in a utilitarian peer-to-peer trading service. *Electronic Commerce Research and Applications*, 12(4), 236-245. https://doi.org/10.1016/j.elerap. 2013.01.004
- Hartyányi, M., Sediviné Balassa, I., Chogyelkáné Babócsi, I., Téringer, A., Ekert, S., Coakley, D., Cronin, S., Villalba, M. T., Cebrián, G. C., Requejo, S. N., Garcia, E. J., Maněnová, M., & Tauchmanova, V. (2018). *Flipped classroom in practice*. Cork: Flip-IT! Flipped classroom in the European vocational education. Retrieved from https://www.flip-it.hu/en/system/files/konyvek/flipit\_book\_en.pdf
- Huang, W. H.-Y., & Soman, D. (2013). *Gamification of Education*. Report Series: Behavioural Economics in Action, 29(4).
- Hughes, I., & Overton, T. (2009). Key aspects of learning and teaching in experimental sciences. In S. Marshall, H. Fry, & S. Ketteridge (Eds.), A Handbook for Teaching and Learning in Higher Education (pp. 226-245). New York: Taylor & Francis.
- Juhász, V. (2020). A gamifikáció mint eszközrendszer és motivációs módszer az oktatásban. Neveléstudomány, 8(2), 37-51. 10.21549/NTNY.29.2020.2.3
- Khaitova, N. F. (2021). History of gamification and its role in the educational process. International Journal of Multicultural and Multireligious Understanding, 8(5), 212-216.
- Lazzaro, N. (2004). Why we play games: Four keys to more emotion without story. Oakland: XEODesign. Retrieved from http://www.xeodesign.com/xeodesign\_ whyweplaygames.pdf
- Lee, J., & Hammer, J. (2011). Gamification in education: What, how, why bother? Academic Exchange Quarterly, 15(2), 1-5. Retrieved from https://www.academia. edu/570970/Gamification\_in\_Education\_What\_How\_Why\_Bother2011
- Manzano-León, A., Aguilar-Parra, J. M., Rodríguez-Moreno, J., & Ortiz-Colón, A. M. (2022). Gamification in initial teacher training to promote inclusive practices: A qualitative study. *International Journal of Environmental Research and Public Health*, 19(13), 8000. https://doi.org/10.3390/ijerph19138000
- Marczewski, A. (2013). *Gamification: a simple introduction*. Amazon Digital Services, Inc.
- McCormick, T. (2013) Anthropology of an idea gamification. Foreign Policy, 201, 26-27.
- McGonigal, J. (2010). Gaming can make a better world. TED Ideas worth spreading. Retrieved from https://www.ted.com/talks/jane\_mcgonigal\_gaming\_can\_make\_a\_ better\_world
- Montenegro-Rueda, M., Fernández-Cerero, J., Mena-Guacas, A. F., & Reyes-Rebollo, M. M. (2023). Impact of gamified teaching on university student learning. *Education Sciences*, 13(5), 470. https://doi.org/10.3390/educsci13050470

- Moran, E. (2018). Trading stamps. In St. James Encyclopedia of Popular Culture. Retrieved from https://www.encyclopedia.com/history/united-states-and-canada/ushistory/trading-stamps
- Ollé, J. (2010). Egy módszer alkonya: A katedrapedagógia végnapjai a felsőoktatásban. In I. Dobó, I. Perjés, & J. Temesi, (Eds.), Korszerű felsőoktatási pedagógiai módszerek, törekvések. Konferencia előadások (pp. 22-31). Budapest: Budapesti Corvinus Egyetem Közgazdaságtudományi Kar Nemzetközi Felsőoktatási Kutatások Központja.
- Ollé, J., Ruszkai, N., & Hülber, L. (2017). A tükrözött osztályterem módszertana és tanulásszervezése. In L. Hülber (Ed.), A digitális oktatási kultúra módszertana (pp. 127-143). Eger: Eszterházy Károly Egyetem.
- Péntek, I., & Hantz, P. (2020). Egy elhanyagolt terület: Az európai egyetemi oktatók szakmódszertani felkészítése. Magyar Tudomány, 181(10), 1378-1399.
- Richter, G., Raban, D. R., & Rafaeli, S. (2015). Studying gamification: The effect of rewards and incentives on motivation. In T. Reiners, & L. C. Wood (Eds.), *Gamification in Education and Business* (pp. 21-46). Cham: Springer. https://doi.org/10.1007/978-3-319-10208-5\_2
- Sajinčič, N., Sandak, A., & Istenič, A. (2022). Pre-service and in-service teachers' views on gamification. *International Journal of Emerging Technologies in Learning*, 17(3), 83-103.
- Salen, K., & Zimmermann, E. (2003). *Rules of play. Game design fundamental*. Cambridge: The MIT Press.
- Santos-Villalba, M. J., Leiva Olivencia, J. J., Navas-Parejo, M. R., & Benítez-Márquez, M. D. (2020). Higher education students' assessments towards gamification and sustainability: A case study. *Sustainability*, 12(20), 8513. https://doi.org/10.3390/ su12208513
- Sheldon, L. (2012). *The Multiplayer Classroom: Designing Coursework as a Game.* Boston: CRC Press.
- Siripipatthanakul, S., Muthmainnah, M., Siripipattanakul, S., Sriboonruang, P., Kaewpuang, P., Sitthipon, T., ... & Jaipong, P. (2023). Gamification and Edutainment in 21st Century Learning. In E. A. Taslim et al. (Eds.), *Multidisciplinary Approaches to Research* 2 (pp. 210-219). Yayasan Corolla Education Centre.
- Supiano, B. (2018). Traditional teaching may deepen inequality. Can a different approach fix it? In *The Chronicle of Higher Education*. Retrieved from https://www.chronicle.com/article/traditional-teaching-may-deepen-inequality-can-a-different-approach-fix-it/
- Werbach, K. (2015). *History of gamification*. Retrieved from https://www.coursera.org/ course/gamification
- Zichermann, G., & Cunningham, C. (2011). Gamification by Design: Implementing Game Mechanics in Web and Mobile Apps. Sebastopol, CA: O'Reilly Media Inc.
- Zichermann, G, & Linder, J. (2013). *The Gamification Revolution: How Leaders* Leverage Game Mechanics to Crush the Competition. McGraw-Hill.

# The Parental Impact on Education: Understanding the Correlation between the Parental Involvement and Academic Results

Claudia - Nicoleta Paun\*

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#### Abstract:

*Introduction:* Extensively researched in the realm of education, the involvement of parents in their offspring's academic performance has been the subject of increased attention. This article aims to examine the impact of parental contribution on their children's scholastic accomplishments, concentrating on the statistical correlation between the two.

*Methods:* This study used qualitative and quantitative methods to examine the association between parents' involvement and academic results.

**Results:** Results show that parental involvement boosts academic performance.

**Discussion:** Understanding the impact of parental education on children's academic performance is essential for educators, policymakers, and families alike, as it highlights the importance of fostering an educationally rich environment for children to thrive.

*Limitations:* The data of this study were collected from a survey of 356 parents from different schools in Saudi Arabia in 2023.

*Conclusions:* The study's findings show that parental involvement positively impacts students' academic outcomes by 42.1%.

**Key words:** parental involvement, academic results, education, statistical correlation.

<sup>&</sup>lt;sup>\*</sup> Claudia - Nicoleta Paun, Bucharest University of Economic Studies, Faculty of Cybernetics and Statistics, Bucharest, Romania; rectorat@ase.ro

#### Introduction

Parents play a crucial role in their children's success in school. Research has demonstrated that parental involvement can completely impact a child's academic performance, which includes their grades, test scores, and overall school performance (Grolnick & Slowiaczek, 1994; Hill & Taylor, 2004; Jeynes, 2005). Parents can indirectly encourage their children- upon their age- with many educational activities: help with homework, support extracurricular activities, attend parent-teacher conferences, volunteer at school, drive them to school, etc. Parental involvement is seen as a shared responsibility among families, schools, and communities (Çayak, 2021). This is because it depends on a wide variety of individual and contextual factors, such as the child's socio-economic status (SES), cultural background, gender, and age (Hoover & Sandler, 1995; Epstein, 2018; Fan & Chen, 2001).

This article discusses the statistical correlation between parental involvement and academic achievement. In today's highly competitive environment, education has evolved from being a luxury to an absolute necessity for every youngster (Coutts et al., 2014). Parental participation improves academic performance, attendance, behavior, and school attitudes (Hoover & Sandler, 1995; Epstein, 2018; Fan & Chen, 2001). Nevertheless, the degree and type of influence have been the subject of much investigation and discussion in recent times (Bradley & Corwyn, 2002). The education level of parents plays a crucial role in shaping the academic journey of their children. It serves as a significant indicator of the educational environment and support available within the household. When parents possess a higher level of education, it tends to positively influence their children's studies and grades. This influence can be attributed to several factors, including the transfer of knowledge and skills, enhanced learning opportunities, increased educational aspirations, and a supportive home environment (Coutts et al., 2014). Parents with higher levels of education often have a deeper understanding of academic concepts and possess the ability to provide educational guidance and support. They can assist their children in comprehending complex subjects, developing effective study strategies, and navigating academic challenges. The transfer of knowledge from parents to children can create a solid foundation for learning, enabling children to excel in their studies and achieve higher grades. Research consistently suggests a strong correlation between parental education and children's academic achievement.

Moreover, parents with higher education levels tend to value education and prioritize their children's academic success. They may have experienced the benefits of education firsthand and recognize its significance in securing better opportunities and enhancing overall quality of life. As a result, these parents often have higher educational aspirations for their children and actively engage in activities that promote learning. They may encourage their children to

participate in extracurricular activities, enroll them in enrichment programs, and provide access to educational resources, such as books, computers, and educational websites. These enriched learning opportunities can contribute to improved academic performance and higher grades (Hoover & Sandler, 1995). However, it is important to note that the impact of parental education on children's studies and grades is not solely determined by formal educational attainment. Even parents without high levels of education can positively impact their children's academic performance through their attitudes, values, ethics, morals, and involvement in their education. A supportive and nurturing home environment, coupled with a belief in the value of education, can have a significant impact on a child's educational journey.

#### **1** Literature review

This section divides parental involvement into three stages: Early Childhood Education, Elementary and Middle School, and High School. Regardless of the parents' level of education, their involvement in the child's journey depends on the age. It is important to stress the fact that the child's age plays a significant factor in the research.

#### 1.1 Early Childhood Education

Early parental involvement is crucial for a child's academic development, particularly during their initial years of schooling. Studies demonstrate that parental involvement in early education leads to improvements in children's school readiness, cognitive development, language abilities, and social competence (Fan & Chen, 2001). For example, Rimm-Kaufman et al. (2003) found that preschool activities like reading, educational games, and museum visits correlated positively with children's literacy, numeracy skills, and readiness for kindergarten.

In addition, early parental involvement in education can help alleviate the adverse effects of poverty and low SES on children's academic performance (Kronick, 2003). Several analyses have demonstrated that children from low-income households who received substantial parental involvement proved better academic outcomes than those who did not (Bradley & Corwyn, 2002; Rouse & Barrow, 2006). Hong (2005) discovered that when controlling the socioeconomic status, kindergarteners with more involved parents had higher test scores in math and reading.

#### 1.2 Elementary and middle school

During elementary and middle school, paternal participation remains beneficial to children's academic performance, but the nature and extent of the involvement that is effective may differ from those in early childhood education. According to

research, participation in homework, reading, and communication with teachers is particularly crucial for academic achievement during these stages (Jeynes, 2005; Grolnick & Slowiaczek, 1994; Hoover & Sandler, 1995). Jeynes (2005) found that parental involvement in middle school boosted motivation, attendance span, and academic success.

Researchers Garbacz et al. (2015) discovered that parental engagement in homework had a greater impact on boys' mathematical ability than on girls' performance. This is because boys are more likely to graduate from high school than girls.

#### 1.3 High school

During high school, parental involvement remains essential in children's performance, though the type and extent of involvement may differ from earlier stages of education. Research suggests that parental participation in academic planning, college readiness, and career guidance are crucial for adolescents' success (Rimm-Kaufman et al., 2003). Dietric and Salmela-Aro (2013) found that involving parents in academic planning, such as course selection and progress tracking, can lead to improved results, motivation, and goal setting for secondary students. Similarly, Jeynes (2005) discovered that students' goals, attendance, and persistence in higher education were all enhanced when their parents were included in the college preparation process.

Parental involvement in college planning has been found to have a greater beneficial effect on Latino students' college attendance and enrollment than on white students, according to research conducted by Halle et al. (1997).

### 2 Methodology

A growing body of research has linked parental involvement to higher academic performance, although researchers disagree on what forms of involvement are most beneficial. Some research has linked parental involvement to better academic outcomes for children, while others have found the relationship to be more nuanced and conditional on other factors (Jeynes, 2005; Grolnick & Slowiaczek, 1994).

In this statistical analysis, the amount of parental participation functioned as the investigation's independent variable, and the parental participation scale, which was established, was utilized to determine the level of parental involvement. The scale gauged parental involvement in various areas, such as monitoring the child's progress, communication with school, and attending parent-teacher conferences. The parents' education level is positively correlated with their children's results. It is important to stress the importance of the level of education of parents. It plays a crucial role in the education system. The

student's GPA was the primary statistic collected for this study because it served as the dependent variable.

This study utilized a quantitative research method and selected 356 parents from various schools in Saudi Arabia using a self-report questionnaire. To assess parental involvement and academic performance, the study asked about family contributions to their children's education. The survey was administered to a statistically significant sample of the population of the country of Saudi Arabia.

#### 2.1 Data Collection

The data were collected using survey forms which were distributed among the parents of the children. The survey form asked parents for information about the current academic performance of their child. It also asked about the parents' level of education. The parental involvement scale, as the name suggests, makes it very easy to answer questions in simple YES or NO. There was a total of 10 questions targeted towards parents in this matter. As per the table below, the responses numbered N=356, the mean (average) of all responses along with the gender, and education level of parents, all considered the independent variables. The dependent variable is the child's result.

#### Table 1

	<u>N</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Mean</u>	Std. Deviation
Gender	356	1.0	2.0	1.562	.4969
Child's Current Enrollment	356	1.0	3.0	2.129	.7801
Child' Result	356	1.0	5.0	1.806	1.1575
Parental_Participation1	356	1.0	2.0	1.143	.3508
Parental_Participation2	356	1.0	2.0	1.303	.4604
Parental_Participation3	356	1.0	2.0	1.045	.2075
Parental_Participation4	356	1.0	2.0	1.303	.4604
Parental_Participation5	356	1.0	2.0	1.528	.4999
Parental_Participation6	356	1.0	2.0	1.110	.3128
Parental_Participation7	356	1.0	2.0	1.135	.3420
Parental_Participation8	356	1.0	2.0	1.081	.2739
Parental_Participation9	356	1.0	2.0	1.390	.4885
Parental_Participation10	356	1.0	2.0	1.511	.5006
Parents' Education	356	1.0	3.0	2.559	.7388

#### Descriptive statistics of data

The distribution of the Child's Results illustrates the performance range among the 356 cases. The majority of students fall within the" A" grade category (90-100%), accounting for 194 cases (54.6%). Additionally, 100 cases (28.1%) fall within the "B" grade range (80-90%), while smaller percentages are distributed across lower results grades: 21 cases (5.9%) in the "C" range (70-80%), 19 cases

(5.3%) in the "D" range (60-70%), and 22 cases (6.2%) in the "F" range (less than 60%).

The dependent variable of our study is the GPA score (Child's Result) and the independent variables are a total of ten questions wrapping up the parental involvement ranging from helping children with homework to being part of the parents' association and attending meetings at school.

#### 2.2 Statistical analysis

Statistical techniques involving Multivariate Analysis of Variance (MANOVA) (Smith, 2020), Pearson-correlation tests, cross-tabulation methods, and regression analysis, were used in SPSS to analyze the data to give insight relationship between dependent and independent variables.

Hypothesis One: There is no significant impact of parental involvement on children's academic performance.

Hypothesis Two: There is a significant impact of parental involvement on children's academic performance.

One of the key findings from the data is the parents' level of education which can give us an insight into how they affect a child's performance through crosstabulation techniques.

#### Table 2

Child	'result vs	narents'	education	cross-tabulation
China	result vi	parents	cuncunon	cross inominition

			Parents' Education			<u>Total</u>
			Higher Education	<u>Undergraduate</u>	<u>Graduate</u>	
	A/00 100%	Count	35	9	150	194
	A/ 90-100%	% within Child's Result	18.0%	4.6%	77.3%	100.0%
	B/ 80- 90%	Count	14	3	83	100
		% within Child's Result	14.0%	3.0%	83.0%	100.0%
Child' Decult	C/ 70- 80%	Count	2	4	15	21
Clina Result		% within Child' Result	9.5%	19.0%	71.4%	100.0%
	D/ 60- 70%	Count	1	15	3	19
		% within Child's Result	5.3%	78.9%	15.8%	100.0%
	F/ 50- 60%	Count	1	20	1	22
		% within Child's Result	4.5%	90.9%	4.5%	100.0%
Total		Count	53	51	252	356
Totai		% within Child's Result	14.9%	14.3%	70.8%	100.0%

It is observed that a higher percentage of cases with parents having Graduate education are present across all performance categories. This suggests a potential correlation between parents' education level and their child's academic performance, with a notable trend of higher academic achievement among

children whose parents have Graduate education. However, further statistical analysis is needed to validate the relationship's significance and uncover potential contributing factors.

#### 2.2.1 Manova

MANOVA is studied to interpret the effects of multiple variables on the dependent variable which in this study is Child's Results.

#### Table 3

	Type III Sum of	<u>df</u>	<u>Mean Square</u>	F	Sig.
	Squares				p-values
Corrected Model	200.423ª	10	20.042	25.125	.000
Intercept	232.555	1	232.555	291.535	.000
Are you attending the Parents Teachers Conference upon the req	27.648	1	27.648	34.660	.000
Is your child dependent on you for the daily studies at home	3.944	1	3.944	4.944	.027
Are you following up with the school upon receiving the Report C	.003	1	.003	.004	.951
Is your child registered for extracurricular activities	1.167	1	1.167	1.463	.227
Does your child participate often in summer camps	.000	1	.000	.000	.988
Are you making sure that your child is always punctual to attend	31.306	1	31.306	39.245	.000
Are you supporting your child in creating projects	1.268	1	1.268	1.589	.208
Are you always in contact with the school via phone email	13.120	1	13.120	16.447	.000
Are you a member of the Parents Association	7.808	1	7.808	9.789	.002
Are you discussing at home with your child about the career path	.638	1	.638	.800	.372
Error	275.204	345	.798		
Total	1637.000	356			
Corrected Total	475.626	355			
a. R Squared = .421 (Adjusted R Squared = .405)					

#### MANOVA findings

The analysis in the table above shows that some of the independent variables have a significant impact on the children's education. The importance of each independent variable's influence on the dependent variable is shown by the p-values, in the last column. The variables with p-values less than 0.05 indicate a statistically significant impact on the child's academic result. The "Corrected Model" explains a sizable part of the variation in the dependent variable (R Squared =0.421), indicating that it accounts for about 42.1% of the variance in a child's academic achievements.

#### 2.2.2 Regression analysis

The same dependent variable, the child's result, was used in the regression analysis testing.

#### Table 4

ANOVA								
Model		Sum of Squares	<u>df</u>	<u>Mean Square</u>	F	Sig.		
	Regression	200.423	10	20.042	25.125	.000 <sup>b</sup>		
1	Residual	275.204	345	.798				
	Total	475.626	355					
a. Depe	ndent Variable: Chil	d' Result						
b. Predi	ctors: (Constant), Pa	rental_Participation10, Par	ental_Particip	oation9, Parental_Partic	cipation8,			

b. Predictors: (Constant), Parental\_Participation10, Parental\_Participation9, Parental\_Participation7, Parental\_Participation7, Parental\_Participation6, Parental\_Participation5, Parental\_Participation4, Parental\_Participation3, Parental\_Participation2, Parental\_Participation1

The table above tests whether the regression model is accurate or not. A significant model fit for forecasting the dependent variable "Child's Result" is found by ANOVA (analysis of variance) with F=25.124 and p=0.001. A significant portion of the variance in the dependent variable is explained by the regression model, which includes the predictors. The mean squares show that the predictors account for the observed variance in the child's academic performance as a whole. The residual sum of squares implies that there may be some unexplained variation, but the model's significance highlights the usefulness of the included factors in predicting the child's academic achievement.

#### Table 5

Coefficients of independent variables as sought from regression

	J 1		0 /	0		
		Unstandardized Coefficients		<u>Standardized</u> <u>Coefficients</u>	<u>t</u>	<u>Sig.</u>
		<u>B</u>	Std. Error	Beta		
	(Constant)	841	.352		-2.391	.017
	Parental_Participation1	.957	.163	.290	5.887	.000
	Parental_Participation2	.274	.123	.109	2.224	.027
	Parental_Participation3	.016	.266	.003	.061	.951
	Parental_Participation4	.155	.128	.062	1.209	.227
1	Parental_Participation5	.002	.107	.001	.015	.988
	Parental_Participation6	1.117	.178	.302	6.265	.000
	Parental_Participation7	.205	.163	.061	1.261	.208
	Parental_Participation8	823	.203	195	-4.056	.000
	Parental_Participation9	.382	.122	.161	3.129	.002
	Parental_Participation10	093	.103	040	895	.372
a. Depend	lent Variable: Child' Result					

The coefficients in the above table of the regression analysis provide insights into the relationship between the dependent variable "Child's Result" and the predictor variables. The constant is -0.841, indicating a negative intercept.

Unwrapping the variables: "Attendance of Parents-Teachers Conferences", "Help with homework at home", "Punctuality at school', "Contact with school", and "Member of Parents-Teachers Association", exhibit statistically significant unstandardized coefficients. These coefficients indicate the change in the dependent variable associated with a one-unit change in the respective predictor, while the other predictors are held constant. Additionally, standardized coefficients (Beta) provide insights into the relative impact of each predictor variable, with "Punctuality" having the highest impact (Beta = 0.302) on the Child's Result. The t-values associated with significance levels indicate the statistical significance of these relationships.

#### 2.3 The impact of parental involvement based on findings

The findings of the regression analysis shed light on the complex interactions between parental participation and a child's academic success. The results underline how important some facets of parental involvement are for encouraging a successful education. In particular, parents who actively participate in conferences (B=0.957, p<0.001) demonstrate a concrete commitment to their child's educational journey, thereby fostering a more conducive learning environment. Additionally, the correlation between efforts to ensure their children's punctuality (B=1.117, p<0.001) and their consistency in communicating with the school (B = -0.823, p<0.001) emphasizes the importance of parental watchfulness and cooperation with educational institutions in fostering academic success. Intriguingly, being part of the Parents Association emerges as a significant predictor in improving academic achievement (B=0.302, p<0.002) indicating that active parental involvement at the institutional level can have a positive impact on students' learning experiences. The study, however, shows that a child's reliance on parental assistance for daily homework and extracurricular activities does not significantly predict academic success, indicating the necessity for a well-balanced strategy to promote self-reliance and autonomy in learning. According to the estimated R-squared value of 0.421, the variables considered in the analysis can account for about 42.1% of the variation in the child's academic performance. This supports the widespread belief that active parental involvement has a positive impact and boosts academic results. Finally, parental engagement is a complex idea with a range of positive effects on a child's educational path. The analysis highlights the crucial role that effective interaction, cooperation, and participation among parents, children, and schools play in creating a climate that is supportive of learning.

#### **3** Future research directions

The study is just an initial phase of a larger quantitative research project. If according to this study 42.1% of the students' results, a further study can be done to analyze what are the other factors impacting the child's achievements. Consequently, most of the responses to the survey are still to be analyzed. It is vital to keep the study's limitations in mind when attempting to draw general conclusions from its findings. The potential for bias is increased by the reliance on self-report measures. The survey's scope was limited to a single county, so caution is needed in generalizing the results. Thus, an additional survey can be conducted with more details into qualitative variables and must explore parental participation and academic accomplishments in more settings as well as groups in the future.

#### Conclusion

The study's findings show that parental involvement positively impacts students' academic outcomes by 42.1%. Nonetheless, the extent and nature of parental involvement may vary based on external factors. Therefore, policymakers and educators must recognize the diverse needs of students and provide tailored support to encourage parental involvement. It is critical to note that academic achievement is a multilayered construct influenced by a variety of subtle elements, even though the model helps to provide a nuanced understanding of these interactions. Therefore, this study acts as a first step, indicating the necessity for a thorough investigation to unravel the comprehensive landscape of impacts that shape student achievement.

#### References

- Barger, M. M. (2019). The relation between parents' involvement in children's schooling and children's adjustment: A meta-analysis. *Psychological bulletin*, 145(9), 855-890. https://doi.org/10.1037/bul0000201
- Bradley, R. H., & Corwyn R .F. (2002). Socioeconomic Status and Child Development. Annual Review of Psychology, 53(1), 371-399.
- Çayak, S. (2021). Parents' perceptions of school climate as a predictor of parents' participation in their children's education. Acta Educationis Generalis, 11(1), 14-28. https://doi.org/10.2478/atd-2021-0002
- Coutts, M. J., Sheridan, S. M., Sjuts, T. M., & Smith, T. E. (2014). Home-school collaboration for intervention planning. In J. T. Mascolo, V. C. Alfonso, & D. P. Flanagan (Eds.), *Essentials of planning, selecting, and tailoring interventions for unique learners* (pp. 92-119). John Wiley & Sons, Inc.

- Dietrich, J., & Salmela-Aro, K. (2013). Parental involvement and adolescents' career goal pursuit during the post-school transition. *Journal of Adolescence*, 36, 121-128.
- Epstein, J. L. (2018). School, Family, and Community Partnerships: Preparing Educators and Improving Schools. Routledge.
- Fan, X., & Chen, M. (2001). Parental involvement and students' academic achievement: A meta-analysis. *Educational Psychology Review*, 13(1), 1-22.
- Fan, W., & William C. M. (2010). The effects of parental involvement on student's academic self-efficacy, engagement and intrinsic motivation. *Educational* psychology, 30(1), 53-74. https://doi.org/10.1080/01443410903353302
- Fantuzzo, J. T. (2000). Family involvement questionnaire: A multivariate assessment of family participation in early childhood education. *Journal of Educational Psychology*, 92(2), 367-376. https://doi.org/10.1037/0022-0663.92.2.367
- Garbacz, S. A., Swanger-Gagné, M. S., & Sheridan, S. M. (2015). The role of schoolfamily partnership programs in promoting student SEL. In J. A. Durlak, C. E. Domitrovich, R. P. Weissberg, & T. P. Gullotta (Eds.), *Handbook of Social and Emotional Learning: Research and Practice* (pp. 244-259). The Guilford Press.
- Grolnick, W. S., & Slowiaczek, M. L. (1994). Parents' involvement in children's schooling: A multidimensional conceptualization and motivational model. *Child development*, 65(1), 237-252.
- Halle, T. G., Kurtz-Costes, B., & Mahoney, J. L. (1997). Family influences on school achievement in low-income, African American Children. *Journal of Educational Psychology*, 89(3), 527-537.
- Hill, N. E., & Taylor, L. C. (2004). Parental School Involvement and Children's Academic Achievement Pragmatics and Issues. *Current Directions in Psychological Science*, 13(4), 161-64. https://doi.org/10.1111/j.0963-7214.2004.00298.x
- Hong, S., & Ho, H. Z. (2005). Direct and indirect longitudinal effects of parental involvement on student achievement: Second-order latent growth modeling across ethnic groups. *Journal of Educational Psychology*, 97(1), 32-42.
- Hoover-Dempsey, K. V., & Sandler, H. (1995). Parental involvement in children's education: Why does it make a difference? *Teachers College Record*, 97, 310-331.
- Jeynes, W. H. (2005). A meta-analysis of the relation of parental involvement to urban elementary school student academic achievement. Urban Education, 40(3), 237-69. https://doi.org/10.1177/0042085905274540
- Kronick, R. F. (2003). Book review: Schools and families: Creating essential connections for learning. *Journal of Psychoeducational Assessment*, 21(1), 89-92. https://doi.org/10.1177/073428290302100107
- Rimm-Kaufman, S. E., Pianta, R. C., Cox, M. J., & Bradley, R. H. (2003). Teacher-rated family involvement and children's social and academic outcomes in kindergarten. *Early Education and Development*, 14(2), 179-198. https://doi.org/10.1207/S15566935EED1402\_3
- Rouse, C. E., & Barrow, L. (2006). US elementary and secondary schools: Equalizing opportunity or replicating the status quo? *The Future of Children*, 16(2), 99-123.
- Smith, K. N. (2020). Making meaning out of MANOVA: The need for multivariate post hoc testing in gifted education research. *Gifted Child Quarterly*, 41-55.

# A Detailed Examination of 8th Grade Students' Mathematical Reasoning Process<sup>1</sup>

Şeyda Zengin - Emrullah Erdem\*

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#### Abstract:

*Introduction:* This study aims to reveal the mathematical reasoning process of 8th-grade students and the reasoning indicators they use in this process.

*Methods:* The study was carried out in line with the data obtained from the Mathematical Reasoning Test (MRT) administered to 292 8th-grade students.

**Results:** The mathematical reasoning performances of the participants were generally at low and medium levels. Evidence was found that students used reasoning indicators such as "... for/because of..., /therefore/so/thus...", "if ... then...", "because...", "should be/should be..." and "equal..." when reasoning.

*Discussion:* It is important that when evaluating the solutions to questions that require mathematical reasoning, students must be interviewed and confirmed how they reached those solutions.

*Limitations:* The limitations of the research are, firstly, that it is limited to 8th graders, and secondly, that students will get bored if the number of questions in the MRT is high.

*Conclusions:* Students must be asked to justify their reasoning while solving problems that require mathematical reasoning.

Key words: mathematical reasoning, reasoning indicators, 8th grade students.

<sup>&</sup>lt;sup>1</sup> This study is a part of the doctoral dissertation prepared by the first author under the supervision of the second author.

<sup>\*</sup> Şeyda Zengin, State School, Bingöl, Turkey; zngseyda@gmail.com Emrullah Erdem, Adıyaman University, Faculty of Education, Adıyaman, Turkey; eerdem@outlook.com

### Introduction

As science and technology develop, the skills expected from individuals have also differentiated and changed. The skills referred to as 21st-century skills are learning and innovation skills (creativity, innovation, critical thinking, problemsolving, communication, collaboration), knowledge, media and technology skills (information literacy, media literacy, and technology literacy), life and career skills (flexibility, adaptability, initiative, self-management, social and intercultural skills, productivity, responsibility, leadership) (P21, 2019). In this century, individuals need to be able to think logically and express their thoughts correctly. Mathematical reasoning skill is needed to cope with the problems encountered in daily life and to solve problems with logical solution methods based on existing data. It should be ensured that learning is linked to daily life and other disciplines at school. It is underlined that children's knowledge of basic logic positively affects their cognitive, affective and social development (Can & Can, 2020). Kramarski et al. (2001) found that there is a relationship between learning mathematics and mathematical reasoning and that those who reason better can produce more effective solutions to problems and make better associations. On the other hand, it is pointed out that reasoning is necessary in the problem-solving process and that reasoning is indispensable in learning mathematics (Lestari, 2019). It is expected that schools will take necessary precautions in this context so that individuals can acquire such skills and use them in their daily lives. Looking at the 21st century, schools should prepare their students as individuals who can think critically, reason, and organize their ideas (Sumarsih et al., 2018).

Reasoning is used in the sense of the line of thought, the way of thinking, adopted to produce claims and reach conclusions (Lithner, 2004). Reasoning is very important in the development of comprehension and association in mathematics (Stylanides, 2007; Yankelewitz et al., 2010). Relating mathematics both within itself and to daily life and other disciplines requires an emphasis on mathematical reasoning and also forms a basis for further mathematical reasoning (Brodie, 2010). Developing students' mathematical reasoning will enable them to acquire many higher-level thinking processes. According to Holyoak and Morrison (2005), to solve a mathematical problem, an individual must think at a higher level, reason about possible outcomes, and decide between alternative outcomes.
# 1 Mathematical reasoning in middle school mathematics curriculum in Turkey

In the Middle School Mathematics (5th, 6th, 7th, 8th grades) Curriculum, the importance of making logical judgments in problem-solving competence and other processes is mentioned, and the basic competencies foreseen for effective learning and correct use of the reasoning skills used in mathematics are given (MNE, 2018).

- 1. Problem-solving
- 2. Mathematical process skills:
  - a. Communication
  - b. Reasoning
  - c. Mathematical modeling
  - d. Association
- 3. Sensory abilities
- 4. Psychomotor skills
- 5. It is stated that information and communication technologies are among the basic skills that are expected to be taught in the curriculum and that learning environments should be prepared to develop reasoning. In this curriculum, it is particularly emphasized that the use of information and communication technologies that make it possible to see different forms of representation of concepts and the relationships between them and enable students to discover mathematical relationships is emphasized. With the help of these technologies, environments should be prepared to develop students' skills such as problem-solving, communication, and reasoning by modeling (MNE, 2018, p. 6).

In the curriculum (MNE, 2018), reasoning is defined as the process of reaching new knowledge by using mathematics-specific tools (symbols, definitions, relationships, tables, graphs, etc.) and thinking techniques (induction, deduction, comparison, creativity, proof, etc.), based on existing knowledge. Since reasoning skill makes individuals' lives easier, it is emphasized that reasoning skill should be developed during the mathematics curriculum. In this regard, it is very important to use appropriate mathematics teaching techniques when necessary, to include information and communication technologies and problemsolving activities, and to include studies aimed at improving students' problemsolving competencies, communication, association, and reasoning skills.

#### 2 Research on mathematical reasoning

In the studies on mathematical reasoning in the literature, it is seen that research is mostly done on efforts to develop this skill by applying thinking methods to students. For example, Kramarski et al. (2001) concluded that there is a relationship between reasoning and both mathematical learning and mathematics achievement. It has been stated that those who make better judgments make better connections by producing effective solutions to problems. Erdem and Gürbüz (2015) determined that the application of high-level open-ended problems that require reasoning can be effective in improving students' mathematical reasoning. Pocan et al. (2017) investigated the effect of demographic characteristics on middle school students' mathematical reasoning levels. They found that there was a significant difference according to the educational status of the parents, but there was no significant difference according to gender, grade level, and number of siblings. Yöndes and Tas (2018) found that the reasoning skills of middle school students were positively affected by playing intelligence games and suggested that they should be encouraged to deal with problems that require reasoning (intelligence games, etc.) rather than the usual formulaic problems. Coban (2019) found that there was a significant difference in the mathematical reasoning of 6th-grade students with differentiated teaching methods on the subject of integers. In addition, it was observed that positive attitudes toward mathematical reasoning were developed in the interviews conducted with the students. Nurjanah et al. (2021) divided the students into two groups and examined the contribution of the subject of plane geometry to the students' reasoning success through applied and computer-based teaching. Both the participants' mathematical concepts and reasoning skills were positively affected. Albaqawi (2023) concluded that female students studying in middle school have low inductive and deductive reasoning skills. It has been suggested to prepare mathematics textbooks and curricula that will enable the development of these skill types.

Mathematical reasoning is indispensable for students to discover, understand, and learn the basic subjects of mathematics (Umay, 2003). As a matter of fact, in the analysis of the answers given by students at different grade levels at the middle school level, studies on reasoning show that students have difficulty in making predictions, reasoning, and understanding and that they are prejudiced against mathematics and their success is low (Koay, 1998; Lamprianou & Lamprianou, 2003; Duatepe et al., 2005; Kramarski & Zoldan, 2008; Angraini et al., 2023). Especially in recent times, the mathematical reasoning thinking level, which is aimed at the competencies expected from individuals, has come to the fore, and in this regard, many studies investigating mathematical reasoning levels have been included in the literature (Erdem & Gürbüz, 2015; Lithner, 2017; Bal-İncebacak & Ersoy, 2018; Benli & Gökkurt Özdemir, 2018). With the

changing world and renewed technology, how students think mathematically has been researched, and the difficulties experienced by students in mathematics have been discussed. Yankelewitz et al. (2010) showed similar success in the same mathematical reasoning tasks, although the grade levels of the students were different. In studies conducted by Erdem (2015) and Kutluca and Tum (2021) at the 7th-grade level, it was determined that students' mathematical reasoning skill levels improved in learning environments enriched with different teaching methods. Albaqawi et al. (2023) concluded that the mathematical, inductive, and deductive reasoning levels of 8th-grade female students in middle school were low. It has been emphasized in many studies that developing mathematical reasoning and teaching this skill to students is important (Mason, 2001; Jonsson et al., 2022; Angraini et al., 2023). Different ways of thinking, providing different learning environments, and investigating skill levels are important points in gaining mathematical reasoning skills. Koçyiğit and Yenilmez (2022) found that STEM-focused teaching applications to 10th-grade high school students increased the students' mathematical reasoning skill levels. It was also found that mathematics teachers encouraging students to make mathematical reasoning by giving them tasks during their lessons had a positive effect on generalization and justification (Mastuti et al., 2022). In a study by McJames et al. (2023), it was determined that teachers' frequent use of creative reasoning questions in their lessons had a significant effect on students' course success. Bai et al. (2023) administered a test consisting of 15 questions to 8thgrade students in the mathematical abilities dimension (abstraction and generalization, reasoning and proof, problem solving) and the Bloom taxonomy cognitive level dimension (analysis, evaluation, and creation). It was concluded that the students had the lowest scores in these dimensions and that the gender variable did not have any effect on higher-order thinking skills. In line with the literature review, it can be said that there are no studies aimed at determining what reasoning indicators and strategies 8th-grade students may use in the mathematical reasoning process.

#### **3** Purpose and importance of the study

Mathematical reasoning enables students to think about mathematics in meaningful and non-memorized ways. Reasoning is a mental process, and the student need to be able to solve the problems s/he encounters correctly and meaningfully while reasoning. In the 21st century, individuals are expected to have the ability to reason, make connections, and express their ideas in different areas of thought (critical, creative, etc.) in the face of problems. As it is known, the prerequisite for solving problems correctly is to understand and reach conclusions by reasoning. As the student's level of mathematical reasoning increases, likely, that his/her ability to analyze the situation using some

indicators will likely increase. How students think in the mathematical reasoning process, what reasoning indicators they use to provide solutions, in other words, their mathematical reasoning pictures, is an important issue that needs to be investigated. In this context, the study aims to determine the mathematical reasoning process of 8th-grade students and the reasoning indicators they use in this process. It is thought that the present study will contribute to the literature by determining the relationship between 8th-grade students' mathematical reasoning skill levels and reasoning indicators. This study sought answers to the following questions:

- What kind of reasoning indicators do 8th-grade students use when reasoning?
- What are the mathematical reasoning levels of 8th-grade students?
- What is the relationship between 8th grade students' mathematical reasoning skill levels and mathematical reasoning indicators?
- What are the strategies used by 8th-grade students while solving questions in MRT?

#### 4 Methodology

#### 4.1 Research design

In the study, explanatory design, one of the mixed methods types, was used. Mixed research is defined as a type of research in which the researcher reaches findings by collecting and analyzing data to find answers to research questions and makes inferences using quantitative and qualitative methods or approaches in a single study (Tashakkori & Creswell, 2007). To explain the general situation in more detail, qualitative data are collected in the context of quantitative data using an explanatory design (Creswell & Piano Clark, 2011). It is quantitative research as the mathematical reasoning levels of the participants are revealed through descriptive statistics. In the qualitative dimension of the research, mathematical reasoning indicators were created through content analysis of the explanations given by the participants for the questions in the MRT. In addition, it was associated with qualitative data obtained from semi-structured interviews to reveal the students' reasoning in depth. By examining the quantitative and qualitative data together in the study, a more detailed picture was obtained about how the participants reasoned.

#### 4.2 Participants

The research was conducted with the participation of 292 eighth-grade students studying in five state middle schools in the center of a province in Turkey. Maximum diversity sampling was used to ensure that the research results were as representative as possible of students in this age group. In this context, students taking the high school entrance exam provide an advantage in terms of the

implementation of the study. Since students are responsible for all the achievements of the mathematics course in the high school entrance exam, they must learn the mathematics achievements and solve questions that require mathematical reasoning. In determining the schools participating in the study, care was taken to select schools with different levels of success (2 low, 2 medium, 1 high) in consultation with the provincial directorate of national education. 149 of the participants are female students and 143 are male students. To keep the identities of the participants confidential, they were given codes as S1, S2, S3...

#### 4.3 Data collection

As a data collection tool, the Mathematical Reasoning Test (MRT), which consists of 22 questions developed using the Ministry of National Education (2020) and middle school mathematics textbooks and can reveal students' reasoning, was prepared. It is assumed that all 8th-grade students have achieved the achievements targeted by the Ministry of National Education at the end of the semester. The average score that can be obtained from the test is a minimum 0 and a maximum 5. To determine whether the questions in the test were questions related to mathematical reasoning, the opinions of 2 field educators, 1 curriculum expert, 1 measurement-evaluation expert, and 4 mathematics teachers (9-10-12-15 work years) were consulted. To check the clarity of the questions, MRT was evaluated by Turkish language experts. As a result of the preliminary application with 50 students with different achievements, it was decided that a 55-minute period for the test was appropriate and the questions were understood by the students. Item analysis was conducted to obtain the final version of the questions in the test. It is stated that items with item-total correlations of .30 and higher distinguish individuals well, items between .20 and .30 can be included in the test or corrected if deemed necessary, and items with lower than .20 should be removed from the test (Büyüköztürk, 2011). Therefore, it was decided to remove 5 questions from the test because their coefficients were below .30. Additionally, the Cronbach Alpha coefficient of MRT was calculated as .88. These analysis results show that the test can be applied reliably for students at this level. Thus, the test consisting of 17 questions has taken its final form. In addition, it was aimed to support the quantitative data with qualitative data by conducting interviews regarding the students' solutions to both create indicators of their mathematical reasoning in MRT and whether they made correct evaluations or inferences.

#### 4.4 Data analysis

The answers given to the questions in MRT were analyzed using statistical package programs. In the analysis of the answers, the scoring scale developed by Erdem (2011) was used. On the scoring scale, the scoring of each question varies between 0 and 5 points (fully correct, partially correct-A, partially correct-B, partially correct-C, incorrect and blank answers). Students' mathematical reasoning skill levels were determined according to their answers to the questions in MRT. The levels of the students regarding this test were determined according to the skill level ranges given in Table 1.

In the analysis of qualitative data, a content analysis technique was used and judgment indicators were created. The reliability of the coding done by two researchers while creating the indicators was determined as 85%. To ensure scoring reliability, two experienced mathematics educator experts independently scored the answers to 17 questions in MRT separately. The consistency between the ratings made independently by two experts was determined as .90. On the other hand, direct quotes from the interviews with the students were also included to increase the validity of the research.

Table 1

mainematical reasoning levels according to MRI score ave						
Level	<u>Score Interval (\$\overline{X})</u>					
Quite Low	0.00-0.99					
Low	1.00-1.99					
Medium	2.00-2.99					
High	3.00-3.99					
Quite High	4 00-5 00					

Mathematical reasoning levels according to MRT score average

#### 5 Results

In this section, the level of mathematical reasoning of 8th grade students is given. In addition, the reasoning indicators that emerge when students make mathematical reasoning are presented. The strategies they use to solve MRT questions when reasoning are also given. The mathematical reasoning levels of the participants are given in Table 2.

Table 2

Statistics on mathematical reasoning levels

Level	Frequency (f)	Percentage (%)
Quite Low	56	19
Low	88	30
Medium	64	22
High	54	18
Quite High	30	10

As seen in Table 2, it was determined that 19% of 8th grade students had quite low mathematical reasoning, 30% had low, 22% had medium, 18% had high and 10% had quite high mathematical reasoning. It was observed that the mathematical reasoning levels of the 8th-grade students participating in the study were mostly at low and medium levels. In this case, it can be said that 8th-grade students are not at a sufficient level of reasoning, and thinking while solving mathematical problems and reaching the desired goal based on the knowledge given.

Table 3

		· J · ·					•					
<u>Mathematical</u>				Mather	natical Re	asoning	Levels					
Reasoning Indicators	Quite	<u>High</u>	<u>Hig</u>	<u>h</u>	Medi	um	Lo	W	Quite	e Low	Tot	tal 🛛
	C.J.	F.J.	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.
for/because	14;46	4;5	18;40	3;3	13;23	6;7	11;16	7;9	4;5	4;4	60;130	24;28
of/therefore/so/thus	18;	18;51 21;43		19;30 18;25		25	8;9		84;158			
	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.
if then	11;24	1;1	11;21	2;2	4;5	4;4	5;5	3;3	0;0	1;1	31;55	11;11
	12;25 13;23		8;9 8;8		1;1		42;66					
	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.
because	6;6	2;2	7;12	2;2	2;2	1;1	4;5	2;3	0;0	0;0	19;25	7;8
	8;8 9;14		4	3;3		6;8		0;0		26;33		
	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.
should be/should be	10;18	0;0	11;14	2;2	12;13	3;3	6;7	1;1	1;1	2;2	41;53	8;8
	10;	18	13;	13;16		15;16		7;8		;3	49;61	
Equal	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.	T.J.	F.J.
	13;20	0;0	5;10	0;0	7;9	5;6	2;2	1;1	0;0	0;0	27;41	6;7
	13;	20	5;1	0	12;1	15	3;	3	0	;0	33;	48
Total	61;1	22	61;1	06	57;7	73	42;	52	12	;13	234;	366

Levels and indicators of mathematical reasoning

X; Y: Number of Students; Number of times the indicator was used

T.J.: True Justification, F.J.: False Justification

As seen in Table 3, five indicator groups emerged depending on the explanations given by 292 8th-grade students in their solutions to the questions in the MRT, according to their mathematical reasoning levels. Indicators with similar meanings were evaluated in the same group. These indicators, from the most

least used, emerged such as [for... /because used to the of... /therefore/therefore/so/thus...], [should be/should be...], [if... then...], [equal] and [because...]. In addition, 234 students made explanations for the questions in the mathematical reasoning test and used reasoning indicators a total of 366 times. Since reasoning is the process of concluding by basing an individual's thoughts on a logical framework, the indicators used by 8th-grade students while making explanations are also classified as True Justification (T.J.) and False Justification (F.J.). Depending on the explanations they made, the students reasoned 201 times with T.J. and 318 times with F.J. Based on Table 3, it can be said that as students' mathematical reasoning levels increase, they use reasoning indicators with T.J. more. It can also be said that as the level of mathematical reasoning decreases, the number of indicators used also decreases. It can be pointed out that students with a quite high level of reasoning use indicators in the right place for the right reasons. In addition, it can be conceived that students with quite low levels of reasoning often use indicators for the wrong reasons.

#### Table 4

	ies empeered te ee asea in questi		
Question	Sub-Learning Area	Strategies Expected to be Used	$\underline{N}$
1.	Factors and Multiples	Finding the Minimum Quantity Based on GCD	137
2.	Factors and Multiples	Finding the Minimum Quantity Based on LCM	156
3.,4.	Square Root Expressions	Using Approximate Perfect Squares	301
5.	Square Root Expressions	Making Relationships Between Numbers	138
		Given a Certain Total	
6.	Data analysis	Simplifying Numbers	151
7.	Algebraic Expressions and Identity	Using Identities	112
8.	Algebraic Expressions and Identity	Finding the Minimum Quantity by Factoring	115
9.	Linear Equations	Finding a Solution Using Percentages	75
10.	Linear Equations	Finding a Solution Using Slope	60
1112.	Inequality-Linear Equations	Finding a Solution Using Slope	146
131417.	Triangles-Geometric Objects	Benefiting from the Information Provided	217
15 16	Transformation Geometry-Geometric	Using Close Factors to Get the Largest	26
1310.	Objects	Multiplication Result	20

Strategies expected to be used in questions on MRT

Table 4 lists the strategies that 8th-grade students are expected to use when reasoning on each question of the MRT. In the 15th and 16th questions of the test, it was observed that the strategy of "Using Close Factors to Get the Largest Multiplication Result", which was expected to be used to reach correct results, was used the least. In this regard, it can be said that this strategy is rarely used by students in reasoning and solving these two problems. It can be conceived that students benefited from the strategy they were expected to use to reach correct conclusions by reasoning about other questions. It can also be said that in the 2nd

question in the MRT, the students made great use of the strategy of "Finding the Minimum Quantity Based on LCM" and reached their conclusion by reasoning. To better illustrate the above results, the reasoning indicators and justifications used by some students in some questions are directly given below.

#### 13. AÇIKLAYARAK ÇÖZÜNÜZ.

Benzinli bir araca LPG sistemi takıldığında % 40 yakıt tasarrufu sağlanmaktadır. LPG sistemi takılma maliyeti ve her 12 aylık kullanım sonunda tekrarlanan LPG sistemi bakırnı ücretleri aşağıdabi tabloda venimiştir.

Tablo : LPG Sistemi İçin Yapılan Harcamalar

Harcama Türü	Tutar (TL)
LPG Sistemi Takılma Maliyeti	ang 3000 V
12 Ay Sonunda LPG Sistemi Bakımı	) / ( 00a 🖒

Kilometrede ortalama 50 kuruş değerinde benzin yakan bir araç sahibi aracıra LPG sistemi taktınyor.

Bu araç LPG sistemi ile ayda ortalama 1000 km yol aldığına göre kaçıncı ayın sonunda LPG sistemi için yapılan toplam harcama yakıt ücretinden e'de edilen tasarrufa eşit olur?

A) 15	(8) 18	C) 21	D) 23	
Horam ben	Since 40=2. 100	D.M. 50kr 2	20 000 40	(1) 11 ( 10
HL Cinsinden	200, Yaping 2001	10000 5		ios gargo
ile esit o	01001 2001	rt 18 oy Sonunda	Toplan	tutar 3600

Figure 1. S47's answer to the Q13 in the MRT.

In the 13th question in the MRT, S47 did not mark the choice by just making operations when reasoning. In his statement, he converted how much fuel will be saved when LPG is installed into the TL unit. It can be said that the student, who thinks that the result obtained and the total cost should be equal, makes a judgment by correctly justifying the data in the table by using the "equal..." indicator. The student calculated the fuel fee depending on the month after the LPG system. The student's MRT average is 4.29 and he has a quite high level of mathematical reasoning.



Figure 2. S135's answer to Q16 in the MRT.

It can be said that in the 16th question of the MRT, S135 used the indicator "should be..." when reasoning, and after finding the volume of the cylinder, she made a judgment with true justification by explaining that the containers to be used should have the largest possible volume since it is desired to use the least number of containers. The student's MRT average is 4.76 and she has a quite high level of mathematical reasoning.

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Figure 3. S160's answer to Q5 in the MRT.

In the 5th question of the MRT, while making a judgment, S160 used the indicator "if...then..." for wrong reasons by writing the same data as the existing data in the question. The student's MRT average is 0.58 and he has a quite low level of reasoning. In general, it is possible to say that students at quite low and low levels of mathematical reasoning give wrong answers for wrong reasons.

1. AÇIKLAYARAK ÇÖZÜNÜZ.



Bir restoran açmayı planlayan Malde Hanım yarıçapları  $\frac{7}{3}$ m ve  $\frac{11}{3}$ m olan yuvarlak masalardan eşit sayıda sipariş vermiştir. Bu masalara sandalyeler eşit aralıklarda ve <u>en az</u> sayıda yerleştirilecektir. Maide Hanım toplam 40 tane masa sipariş etmiştir.

Buna göre Maide Hanım'ın kaç sandalyeye ihtiyacı olur? (n=3 alınız.)

C) 540 D)720  $2\mu r = \frac{11}{7} \cdot \frac{21}{5} \cdot \frac{2}{5} \cdot \frac{2}{$ EBOBiunu oliyoruz. Esit oralik delig ¢

Figure 4. S144's answer to Q1 in the MRT.

It can be stated that in MRT, while making a judgment in Q1, S144 benefited from the strategy of "Finding the Minimum Quantity Based on GCD", which is expected to be used to reach the correct conclusion. The student's MRT average is 4.17 and he has a quite high level of mathematical reasoning.

Various interviews were held with the students, whose explanations for their solutions to the questions in the MRT were not well understood, to reveal in more detail how they thought of their solutions. Some of these interviews are given below.



1755

Yarıçapı r ve yüksekliği h olan silindirin hacmi mr<sup>2</sup>h dir.

16. ACIKLAYARAK CÖZÜNÜZ.



Tabloda yarıçapları ve yükseklikleri verilen dik dairesel silindir biçimindeki su kaplarının tamamı su ile doldurulup şekilde yarıçapı 5 m ve yüksekliği 10 m olan dik dairesel silindir biçimindeki su deposunun tamamı bu kaplarla dolduruluyor.

Bu iş için bu kaplardan her biri <u>en az bir kez</u> kullanılacağına göre su deposu taşmayacak şekil<u>de en</u> az kaç seferde dold<u>urulur? (π=3 alınız)</u>



Figure 5. S286's answer to Q16 in the MRT.

When S286's solution to Q16 in MRT was examined, it was seen that he calculated the volumes of the containers to be used to fill the water tank and the volumes of the tank to be filled, but then did it without explaining the operations. In the interview with the student regarding this solution, he said, "I found the volume of the warehouse and the volume of the others, then I thought about subtracting the volumes of the containers from the volume of the warehouse, but then I stopped doing it because I thought I would make a mistake." The student's MRT average is 2.47 and he has a medium mathematical reasoning level.



Figure 6. S285's answer to Q3 in the MRT.

S285 subtracted Kenan's mass from the maximum mass that the elevator could carry in the 3rd question on MRT. She wrote the mass of each box as  $a\sqrt{b}$  using square root expressions. During the interview with her, she said, "I found the maximum amount the elevator can carry is 362. I changed  $\sqrt{156}$  to  $2\sqrt{39}$ . "I couldn't interpret what I should do next". Based on this statement, it can be said that the student could not answer the question correctly because she could not use the expected strategy of "using approximate perfect squares" in square root expressions. The student's MRT average is 2.53 and she has a medium mathematical reasoning level.

#### 6 Discussion and conclusions

This study was conducted to determine 8th-grade students' mathematical reasoning process and the reasoning indicators they use in this process. As a result of the analyses carried out for this purpose, various results were obtained. First, it was determined that the mathematical reasoning levels of the participants were generally low and medium. In this case, it can be stated that 8th grade

students do not have a sufficient level of reasoning, and thinking while solving mathematical questions and reaching the desired goal based on the knowledge given. In the research conducted by Erdem and Gürbüz (2015), it was found that the mathematical reasoning of middle school students was at low and medium levels. A similar conclusion was reached by Poçan et al. (2017). Studies have shown that reasoning is a difficult process (Erdem, 2015; Yenilmez & Ata, 2019) and that both middle school students and teachers make a lot of effort mentally (Öz & Işık, 2018; Benli & Gökkurt Özdemir, 2021; Özaydın, 2022). It was concluded that when learning environments that are enriched using different and entertaining teaching methods are designed, students' mathematical reasoning improves and they begin to love mathematics (Erdem, 2015; Kutluca & Tum, 2021).

Second, depending on the explanations given by the 8th-grade students in their solutions to each question in the MRT, the reasoning indicators such as "... for/because of.../, therefore,/so/thus...", "if ... then...", "because...", "should be/should be..." and "equal..." emerged. Mason (2001) highlighted that using indicators similar to these when students reason improves mathematical reasoning. A similar conclusion was reached by Mason et al. (2012). When this result was detailed, it was seen that the students mostly used the indicators "for... /because of.../therefore/so/thus..." and "should be/should be..." in their explanations while reasoning. On the other hand, it was revealed that students used the indicators "equal..." and "because ... " the least. These results are similar to the results of studies in the literature. For example, it was mentioned that when doing mathematical reasoning, it was necessary to focus on students' explanations and how the rules worked, rather than directly applying the rules (Norqvist, 2018). McJames et al. (2023) pointed out the importance of students' reasoning by deciding on their strategies for solving problems in lessons. This result shows that it is necessary to encourage students to reason by considering the questions "Why?", and "How?". In this way, students who are encouraged to use reasoned indicators in their solutions are prevented from learning by rote and using stereotypical methods.

Third, it was observed that among the strategies that students were expected to use in solving MRT questions, the strategy of "Using Close Factors to Get the Largest Multiplication Result" was used the least in solving the 15th and 16th questions. When this result was detailed, it was revealed that the students rarely used this strategy in their solutions by reasoning in two questions, and they made correct justifications by reasoning about the contents of the other questions. On the other hand, it was observed that the students reached their conclusion by making good use of the "Finding the Minimum Quantity Based on LCM" strategy expected in the 2nd question. These results are similar to the results of studies in the literature. For example, Jonsson et al. (2022) pointed out that the

methods used for correct reasoning and proof had a positive effect on increasing the reasoning levels of high school students, the student's self-expression, and cooperation in the classroom.

Finally, when the students' papers were examined, it was seen that some students reached only operation-oriented solutions when reasoning and could not make an explanation. What is expected from students is to follow a path that is aware of the relationship between the knowledge given and how they can reach correct conclusions with justifications while pursuing a solution. When in-depth interviews were conducted with the students about the way they followed in solving some questions, they said that they marked the "smallest" or "largest" results in the options based on the "minimum" or "maximum" expressions in the question stem. This shows that they make solutions by heart, without understanding what they read and without reasoning. It has been observed that those who solved the questions incorrectly mostly made such explanations, while those who solved the questions correctly made explanations using correct reasoning indicators. It is stated that teaching students rules rather than concepts in teaching mathematics makes them dependent on operations (Dahlan & Wibisono, 2021; Abidin et al., 2020). It can be said that this is due to students' insufficient conceptual knowledge of mathematics subjects. Geteregechi (2020) suggested that it is necessary to encourage students to understand the mathematical concepts necessary for reasoning. Additionally, Jäder et al. (2020), when middle school students were asked to solve problems that required reasoning, it was determined that the students had insufficient conceptual knowledge and generally solved problems with classical rules and procedures. To solve this problem, care should be taken to ensure that the mathematical reasoning questions asked to students are high-level open-ended questions without answer choices. Similarly, it is possible to come across studies suggesting that open-ended questions should be used to reveal mathematical reasoning correctly (Cifarelli & Cai, 2005; Erdem, 2015; Erdem & Soylu, 2020; Özdemir et al., 2022; Ulinnuha et al., 2021; Rizos & Gkrekas, 2023).

On the other hand, the test used in the current study was found to be effective in terms of revealing the reasoning indicators in detail by making explanations while students were reasoning. Therefore, if multiple-choice questions are to be used, they must be questions in which students can express themselves and whose solutions are requested with justification. It is underlined in the literature (Erdem, 2015; Yenilmez & Ata, 2013; Kutluca & Tum, 2021; Albaqawi, 2023) that questions that require reasoning should be of a type that can reveal whether students understand the relevant subject, detect where they have difficulties, and reveal which strategies they choose and why. In this context, comparatively revealing the indicators that students at different grade levels can use when making mathematical reasoning may be the subject of future research.

#### 7 Limitations and implications

In summary, based on the results of the research, it is strongly recommended that justified indicators must be taken into consideration in revealing and evaluating students' real mathematical reasoning. The most important thing to note here is that when evaluating the solutions to questions that require mathematical reasoning, students must be interviewed and confirmed how they reached those solutions. Otherwise, it should not be forgotten that there may be students who reasoned with true justification in the questions but could not write them down with correct explanations or expressions. To carry out this process correctly, it is necessary to evaluate the answers as soon as the questions are applied to the students and, when necessary, to immediately interview the students without forgetting their solutions. One of the limitations of the research is that it is limited to the mathematical reasoning of 8th-grade students. Comparisons can be made by conducting similar studies at other grade levels to reveal, evaluate, and improve mathematical reasoning processes. In this context, it can be seen what kind of mathematical reasoning indicators emerge at which grade level. Another thing to consider is whether the questions are related to the topics students have studied so far. During the application, students were not notified that any topic was not covered.

Another limitation is that students' performance may be negatively affected due to fatigue or boredom with the last questions in the MRT. This process emerged in the pilot application and was also mentioned by some students. Thus, the number of questions in the MRT was reduced. However, during real application, it was observed that some students got bored after a while. Current research can be conducted on large samples to determine how many questions should be composed of questions on average in tests measuring mathematical reasoning for students and how much time should be given for each question. In connection with this, it is also important to plan the time to be given for reasoning tests, taking into account the number of questions, so that it does not exceed the duration of the lesson in each country. Otherwise, if students cannot use the break they are accustomed to, they may be reluctant to reveal their true potential, and this may affect the result. In this context, it can be stated as a suggestion that the application of mathematical reasoning tests, which require high-level thinking, not only for 8th-grade students but also for all grade levels in middle school, should be planned in a way that does not exceed the duration of the lesson and should consist of fewer questions. Thus, considering the age factor, one can gain more insight into how students can use indicators and true or false justifications in their solutions to mathematical reasoning tests consisting of a small number of questions in middle school. In this context, students must be asked to justify their reasoning while solving problems that require mathematical reasoning.

#### References

- Abidin, Z., Utomo, A. C., Pratiwi, V., Farokhah, L., Jakarta, U. B., & Jakarta, U. M. (2020). Project-based learning-literacy in improving students' mathematical reasoning abilities in elementary schools. *Journal of Madrasah Ibtidaiyah Education*, 4(1), 39-52.
- Albaqawi, H. M. (2023). Inductive and deductive reasoning in mathematics of female middle school students. *Journal of Positive School Psychology*, 7(3), 758-766.
- Angraini, L. M., Larsari, V. N., Muhammed, I., & Kania, N. (2023). Generalizations and analogical reasoing of junior high school viewed from Bruner's learning theory. *Infinity*, 12(2), 291-306.
- Bal-İncebacak, B., & Ersoy, E. (2018). Reasoning skills of secondary school students towards PISA questions. *İnönü University Journal of the Faculty of Education*, 19(2), 269-292.
- Bai, Y., Liang, H., Qi, C., & Zuo, S. (2023). An assessment of eighth graders' mathematics higher order thinking skills in the chinese context. *Canadian Journal* of Science, Mathematics and Technology Education, 23, 1-18.
- Benli, A. N., & Gökkurt Özdemir, B. (2021). An examination of mathematics teachers' mathematical reasoning skills according to TIMSS standards. *Mediterranean Journal of Educational Research*, 15(38), 1-28.
- Brodie, K. (2010). *Teaching, Mathematical Reasoning in Secondary School Classrooms.* New York: Springer Science Business Media.
- Can, D., & Can, V. (2020). Fairness in resource distribution: Relationship between children's moral reasoning and logical reasoning. Acta Educationis Generalis, 10(3), 66-86. https://doi.org/10.2478/atd-2020-0021
- Cifarelli, V. V. & Cai, J. (2005). The evolution of mathematical explorations in openended problem-solving situations. *The Journal of Mathematical Behavior*, 24(3), 302-324.
- Creswell, J. W., & Piano Clark, V. L. (2011). *Designing and Conducting Mixed Methods Rsearch* (2nd ed.). Sage.
- Çoban, H. (2019). The Effect of Differentiated Instructional Design on Students' Mathematical Reasoning Skills, Levels of Using Metacognitive Learning Strategies and Problem Solving Skills. [PhD Dissertation, Balıkesir University]. Balıkesir.
- Dahlan, J. A., & Wibisono, Y. (2021). The effect of hands-on and computer-based learning activities on conceptual understanding and mathematical reasoning. *International Journal of Instruction*, 14(1), 143-160.
- Duatepe, A., & Akkuş-Çıkla, O., & Kayhan, M. (2005). An investigation on students' solution strategies for different proportional reasoning items. *Hacettepe University Journal of Education*, 28, 73-81.
- Erdem, E. (2011). An Investigation of the Seventh Grade Students' Mathematical and Probabilistic Reasoning Skills (MA Thesis). Adıyaman University, Adıyaman.
- Erdem, E. (2015). *The Effect of Enriched Learning Environment on Mathematical Reasoning and Attitude* (Doctoral dissertation). Ataturk University, Erzurum.
- Erdem, E., & Gürbüz, R. (2015). An analysis of seventh-grade students'mathematical reasoning. *Çukurova University Faculty of Education Journal*, 44(1), 123-142.

- Erdem, E. (2016). Relationship between mathematical reasoning and reading comprehension: The case of the 8th grade. *Necatibey Faculty of Education Electronic Journal of Science & Mathematics Education*, 10(1), 393-414.
- Erdem, E., & Soylu, Y. (2020). Views of teachers and 7th graders on an enriched learning environment designed for improving mathematical reasoning. *European Journal of Education Studies*, 7(11), 48-77.
- Geteregechi, J. M. (2020). Investigating Middle School Students' Mathematical Reasoning in a Connected In-School and Out-of-School Context [Doctoral dissertation, Syracuse University]. Syracuse.
- Holyoak, K. J., & Morrison, R. G. (Eds.). (2005). The Cambridge Handbook of Thinking and Reasoning. Cambridge University Press.
- Jäder, J., Lithner, J., & Sidenvall, J. (2020). Mathematical problem solving in textbooks from twelve countries. *International Journal of Mathematical Education in Science* and Technology, 51(7), 1120-1136.
- Jonsson, B., Mossegård, J., Lithner, J., & Karlsson Wirebring, L. (2022). Creative mathematical reasoning: Does need for cognition matter? *Frontiers in Psychology*, 12, 797807.
- Kramarski, B., Meverech, Z., & Lieberman, A. (2001). Effects of miltilevel versus unilevel metacognitive training on mathematical reasoning. *The Journal of Educational Research*, 94(5), 292-300.
- Kramarski, B., & Zoldan, S. (2008). Using errors as springboards for enhancing mathematical reasoning with three metacognitive approaches. *The Journal of Educational Research*, 102(2), 137-151.
- Koay, P. L. (1998). The knowledge of percent of pre-service teachers. *The Mathematics Educator*, 3(2), 54-69.
- Koçyiğit, Ş., & Yenilmez, K. (2022). Investigation of students' mathematical reasoning skills in STEM-Focused teaching processes. Afyon Kocatepe University Journal of Social Sciences, 24(1), 122-145.
- Kutluca, T., & Tum, A. (2021). The effect of enriched learning environments using different learning ways on mathematical reasoning skills and problem solving attitude. *Cumhuriyet International Journal of Education*, 10(1), 344-370.
- Lamprianou, I., & Lamprianou, T. A. (2003). The probabilistic thinking of primary school pupils in Cyprus: The case of tree diagrams. *International Group for the Psychology* of Mathematics Education, 3, 173-180.
- Lestari, S. A. P. (2019). Mathematical reasoning ability in relations and function using the problem solving approach. *Journal of Physics: Conference Series*, 1188, 012065.
- Lithner, J. (2004). Mathematical reasoning in calculus textbook exercises. *The Journal of Mathematical Behavior*, 23(4), 405-427.
- Lithner, J. (2017). Principles for designing mathematical tasks that enhance imitative and creative reasoning. *ZDM Mathematics Education*, 49(6), 937-949.
- Mastuti, A. G., Abdillah, A., & Rijal, M. (2022). Teachers promoting mathematical reasoning in tasks. *Jurnal Teori Dan Aplikasi Matematika*, 6(2), 371-385.
- Mason, J. (2001). Questions about mathematical reasoning and proof in schools. Opening address. QCA Conference, UK. Retrieved from http://xtec.cat/centres/a8005072/ articles/proof\_and\_reasoning.pdf

- Mason, J., Oliveira, H., & Boavida, A. M. (2012). Reasoning reasonably in mathematics. *Quadrante*, 21(2), 165-196.
- MNE (Ministry of National Education) (2018). *Middle School Mathematics 1-8 Classes Teaching Program.* Ankara, Turkey: Head Council of Education and Morality.
- McJames, N., Parnell, A., & O'Shea, A. (2023). Investigating the effect of creative mathematical reasoning tasks on student achievement: a causal inference machine learning approach. In A. Twohill and S. Quirke (Eds.), *Proceedings of the Ninth Conference on Research in Mathematics Education in Ireland (MEI 9).*
- Norqvist, M. (2018). The effect of explanations on mathematical reasoning tasks. *International Journal of Mathematical Education in Science and Technology*, 49(1), 15-30.
- Nurjanah, Dahlan, J. A., & Wibisono, Y. (2021). The effect of hands-on and computerbased learning activities on conceptual understanding and mathematical reasoning. *International Journal of Instruction*, 14(1), 143-160.
- Öz, T., & Işık, A. (2018). Investigation of the mathematical reasoning skill levels of mathematics education students. *International Journal of Educational Studies in Mathematics*, 5(3), 109-122.
- Özaydın, Z. (2022). Evaluation of Mathematical Reasoning Competence in the Process of In-Service Teacher Training and Practices of Mathematical Literacy Given via Distance Education [Doctoral Dissertation, Uludag University]. Bursa.
- Özdemir, E., Kar, T., & Öçal, T. (2022). Same mathematical structure, different design: how does task format affect creative problem-posing performance? *Acta Educationis Generalis*, *12*(2), 112-139. https://doi.org/10.2478/atd-2022-0017
- P21. (2019). *P21's Frameworks for 21st Centry Learning*. Retrieved from http://www.battelleforkids.org/networks/p21/frameworks-resources
- Poçan, S., Yaşaroğlu, C., & İlhan, A. (2017). Investigation of secondary 7th and 8th grade students' mathematical reasoning skills in terms of some variable. *The Journal of International Social Research*, 10(52), 808-818.
- Rizos, I., & Gkrekas, N. (2023). Incorporating history of mathematics in open-ended problem solving: An empirical study. *Eurasia Journal of Mathematics, Science and Technology Education*, 19(3), 1-17.
- Stylanides, A. J. (2007). Proof and proving in school mathematics. *Journal for Research in Mathematics Education*, 38(3), 289-321.
- Sumarsih, Budiyono, & Indriati, D. (2018). Profile of mathematical reasoning ability of 8th grade students seen from communication alability, basic skills, connection, and logical thinking. *Journal of Physics: Conference Series*, 1008(1), 1-10. Washington: IOP Publishing.
- Tashakkori, A., & Creswell, J. W. (2007). The new era of mixed methods. *Journal of Mixed Methods Research*, 1(1), 3-7.
- Taş, İ. D., & Yöndemli, E. N. (2018). The effect of intelligence games on secondary school students' mathematical reasoning skills. *Turkish Journal of Primary Education*, 3(2), 46-62.
- Ulinnuha, R., Budi Waluya, S., & Rochmad, R. (2021). Creative thinking ability with open-ended problems based on self-efficacy in gnomic blended learning. Unnes Journal of Mathematics Education Research, 10(A), 20-25.

- Umay, A. (2003). Mathematical reasoning ability. Hacettepe University Journal of Education, 24, 234-243.
- Wirebring, L. K., Wiklund-Hörnqvist, C., Stillesjö, S., Granberg, C., Lithner, J., Andersson, M., et al. (2022). An fMRI intervention study of creative mathematical reasoning: Behavioral and brain effects across different levels of cognitive ability. *Trends in Neuroscience and Education*, 29, 100193.
- Yankelewitz, D., Mueller, M., & Maher, C. A. (2010). A task that elicits reasoning: A dual analysis. *The Journal of Mathematical Behavior*, 29(2), 76-85.
- Yenilmez, K., & Ata, A. (2013). Effects of mathematical literacy course on pre-service mathematics teachers' self-efficacy levels of mathematical literacy. *The Journal of Academic Social Science Studies*, 6(2), 1803-1816.

## The Need for Academic Writing in Albania

#### Klodjana Skendaj\*

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#### Abstract:

*Introduction:* This research analyzes the importance of academic writing in Albania and suggests introducing it as a mandatory course in all fields of study. The study aims to identify students' perceptions of academic writing and the importance of clear structure and guidelines in academic writing templates. The research collected data through 253 online questionnaires from students of private and public HEIs (Higher Education Institutions) in Albania, revealing that students lacked adequate skills in primary writing forms and were unaware of the steps required to use resources.

*Methods:* 253 Albanian university students participated in a study on academic writing abilities and methods. The study used a structured questionnaire with 23 closed-ended questions related to statements relevant to the concepts provided by the Literature Review on the issues of writing skills, methodology, and the required steps of academic writing.

**Results:** The study found that over half of the students surveyed did not study academic writing, which was mainly offered as an elective course for the undergraduate level. Less than half of the students confirmed that their universities offered a template for them to guide themselves through the studying process. The research also found a connection between the lack of academic writing in the curricula and academic integrity.

**Discussion:** The Ministry of Education and HEIs should provide theoretical and methodological guidelines for designing academic writing courses in Albanian. Academic writing programs in Albanian and English should be offered to faculty members and researchers. Academic Writing should be mandatory for every study program, collaborating with disciplinary professors and linguistics to improve the existing curricula and creating opportunities for students to express their critical thinking through writing skills.

*Limitations:* Due to the COVID-19 pandemic, this research faced limitations in accessing the syllabi of some faculties and restricted student gatherings.

<sup>\*</sup> Klodjana Skendaj, University of New York Tirana, Department of Psychology, Tirana, Albania; klodjanaskendaj@unyt.edu.al

Therefore, the questionnaire was delivered online, and the results presented in the paper refer to the respondents' self-regulation while answering online.

**Conclusions:** The survey revealed that students from public and non-public higher education institutions lack basic writing skills, prefer internet guidance over professor's assistance, struggle with paraphrasing, summarizing, and referencing, and lack academic integrity. However, students showed a high interest in academic writing as a mandatory course in higher education institutions.

Key words: academic writing, higher education institutions, mandatory.

#### Introduction

Academic writing in Albania has been a topic of discussion since the fall of the Communist regime in 1990. For over fifty years, the education system was influenced by the Russian education model, which significantly impacted our approach to writing. As a student, I was taught that using elaborate language and expressing my ideas passionately as if they were my own would make my paper excellent. There was no concept of focus, organization, or word limit, and the only criteria for assessment were the number of mistakes and the teacher's general opinion. High school curriculums analyzed literature, including the most well-known authors and their masterpieces.

As professionals, we understand the immediate need to introduce academic writing into our higher education system. However, upon examining the curricula offered in most higher education institutions (HEIs), it becomes evident that there is a lack of a uniform writing format provided to students by leading universities. Given the inconsistent curricula of pre-university education systems, it is not surprising that many students struggle to write even a simple email, let alone a research paper.

In an editorial article published for Panorama Newspaper, a scholar of the Albanian language, Bahri Beci (2019), stated, "If we analyze the programs and texts more deeply, we will be convinced that the new programs and texts of language and literature approved so far are like warehouses without inventory." After reviewing the curricula of both public and private educational institutions in Albania, it was discovered that academic writing courses are not offered to students in most cases, and even when they are available, they are not mandatory. Additionally, there is no consistency among higher education institutions regarding including academic writing courses in their syllabi or the books used in these courses, mainly unpublished lectures or inaccessible books. Surprisingly, even faculties closely related to writing, such as the Department of Journalism and Communication, primarily use a curriculum based on foreign

authors with different language structures. Gjovalin Shkurtaj (2017, p. 32), an Albanian language expert, has emphasized the urgency of this issue in his book "Linguistic Urgency," stating that foreign influences in Albanian syntax often appear more as influences in the structuring of thought than as linguistic influences. Shkurtaj (2017) scrutinizes the sectors of the Albanian language wherein foreign syntactic influences have impacted the Albanian standard language. These include the language used in official documents, books, media rhetoric, articles, and others. Emil Lafe (2014), another linguistics expert, stated, "The essence of language, the identity of language, is the grammatical system. Names are inflected, masculine, feminine, adjectives, verbs, first choice, second choice, etc. The grammatical system is like the language system."

Academic Writing is defined by the Oxford Dictionary as a formal and factual style of writing that is used for essays, research papers, and other academic texts. If we take an example from Western curricula, we would probably consider the system they have created for their standard language as a crucial factor in their education systems. Mary R. Lea from the Institute of Educational Technology, UK, and Brian Street from King's College London highlight that: "Learning in higher education involves adapting to new ways of knowing: new ways of understanding, interpreting, and organizing knowledge. Academic literacy reading and writing within disciplines - constitute central process through which students learn new subjects and develop their knowledge about new areas of study." (Lea & Street, 1998, p. 158) In many Western universities, writing is a crucial aspect of obtaining a degree. As such, both native and non-native English speakers are required to take a course in academic writing for a duration of one or two terms. According to Leki and Carson (1994, p. 83), universities implicitly support the idea that being able to write well is essential for academic success. Often, the only mandatory course for L2 and NES students is a term to a year of composition. Academic writing is beneficial for developing analytical thinking and the ability to express ideas concisely and logically. These skills are crucial for possessing practical academic writing skills. Furthermore, it is essential to adapt one's message to different audiences to communicate effectively (Leon, 2023).

However, Albanian higher education institutions (HEIs) take a different approach to the importance of writing and academic writing courses. In these institutions, academic writing is an elective course, and students are not required to take it.

The objectives of this research are as follows:

- (i) To describe students' perception of the importance of academic writing in Albania.
- (ii) To identify the importance of clear structure and guidelines in the academic writing templates: abstract, content, results, descriptive papers, etc.
- (iii) To identify the literature used in HEIs in Albania.

The research questions of this research are as follows:

- (i) What are the differences in the assisting process for the writing process among first-year to third-year undergraduate students?
- (ii) Is there a relationship between the lack of academic writing and the level of academic integrity in HEIs?
- (iii) What is students' perception regarding Academic Writing as a mandatory course for HEIs?

#### **1** Literature review

Academic writing can be challenging because it requires a vast range of skills, including a deep understanding of linguistics and the ability to break down complex ideas into simple components. While teaching Composition to first-year bachelor students at New York University in Tirana, we were inspired to research this topic. The program is taught in English and follows the American curriculum. Many of previous students had trouble with academic writing when they went to other universities. Our research showed that many of the top universities in Albania use Umberto Eco's book "Come si fa una tesi di laurea. Le materie umanistice" (1997) as a resource for their curricula. A curriculum for students in Albania featured various authors, including Bardhyl Musaj, who wrote a book called "Si te shkruajme ese" in 2004, which is no longer available. However, most of the other authors' works were unpublished lectures or written by Western authors. While this may seem like a search for excellence, the curriculum did not align with the structure of the Albanian language. In contrast, Western universities' curricula for first-year bachelor students include entire chapters on grammar and syntax rules of formal writing, which introduces students to the formal language used in academic settings. In the third edition of the book "Introduction to Academic Writing," authors Alice Oshima and Ann Hogue (2007) emphasize that writing in English for academic purposes may differ from writing in one's native language. The words, grammar, and way of organizing ideas may differ from what one is accustomed to in their native language. Although the English style of writing may appear clumsy, repetitive, or even impolite, it is neither better nor worse than other styles; it is simply different. According to Servet Celik from the University of Trabzon in Turkey, students who have a limited vocabulary, take longer to write, and are restricted to

using a simplistic writing style may find it challenging to express themselves adequately, negatively affecting their self-efficacy. Students are often required to write comments on situations in Psychology or describe experiments in Chemistry.

However, they are expected to have acquired a standard formal writing format, which is often not the case. In an article, Irina Korotkina (2014) discussed the problem of writing in Albania, stating that it was "holistic, involving educational, administrative, and methodological issues, which could not be solved by separate actors and need consolidation." This writing issue is not limited to Albania, as Russia has been dealing with a similar problem for several years. In her article "Academic Writing in Russia: Evolution or Revolution" (Korotkina, 2014), she provides a personal and first-hand account of her experience with the immediate need for improvement in writing. She explains that she was only exposed to the fundamental notion of composition or academic writing when she became a professional. Although she faced some obstacles, she overcame them and improved her writing skills. After exploring recent research papers on academic writing, it has become evident that this issue is prevalent in several countries, particularly those with different approaches than Western countries. The pressure to align with EU standards has significantly improved academic writing in the Balkans, mainly Romania and Bulgaria. This process has not only highlighted the importance of harmonizing and synchronizing university curricula but has also emphasized the role of higher education in creating active citizens who can positively contribute to the growth of human society. This was stated in the Bologna Process - Bucharest Communiqué of 2013. Academic writing is mandatory in some countries in higher education institutions (HEIs). The issues students face in these countries are the same as those encountered by students studying writing skills, such as summarizing, paraphrasing, citing, etc.

An article by Irina Ivanova (2020) found that students in these countries have problems with general understanding, referencing, acknowledging sources, and other research-related aspects. However, the academic writing situation in Albania's HEIs is different. For example, many bachelor studies are barely present, even when offered as an elective. The curricula are unsuitable for research and adapted to the Albanian language framework. In an analysis written for Sot Newspaper in 2016, scholar and author Ramazan Sherja (2016) emphasized that Albanian textbooks, particularly those offered to preschool education institutions, avoid the development of theoretical linguistic knowledge and practical side of literary theories, leaving no premise to do as many written tasks as possible with linguistic character. Sherja argues that the Albanian Language and Literature are taught as a single subject, which diminishes the importance of teaching linguistic and grammatical concepts of the language, especially to senior high school students. According to the Education

Developmental Institute (IZHA, 2018), changes were made by adding two extra hours to the timetable but still as an elective course. Academic writing and research work are interdependent, as evidenced by a policy paper published by Besfort Lamallari, Gentiola Madhi, and Miada Shpuza in April 2016, titled "Academic (Dis) Honesty in Albania: Concerns on Plagiarisms." The study analyzed articles from various pedagogues and identified severe issues with listing sources, their completeness and accuracy, compliance with the requirement of paraphrasing, citations without quotation marks, and in-text references.

#### 2 Methodology

This study investigated the writing skills, methodology, and steps required for academic writing among undergraduate and graduate students in Albanian universities. The researchers used a quantitative approach and a structured questionnaire of 23 statements. The questionnaire was created using Google Forms and distributed to students via email and social media accounts over a period of six months. A total of 253 students from public and private higher education institutions, aged between 18 and 23 years old and from different fields of study, participated in the survey. The respondents included both first-year Bachelor's and first-year Master's students from both private and public HEIs. The questionnaire consisted of closed-ended questions related to the statements provided by the literature review.

#### **3** Results and discussion

In regards to understanding the perception of the writing process in Albania, particularly academic writing, students were asked if they had studied academic writing or any other form of writing skills. Out of the responses received, 48.2% answered "yes," 35.6% answered "no," and 16.2% were "not sure." 131 students, or 51.8%, did not have previous exposure to academic writing. This reveals that academic writing was mainly offered as an elective course for undergraduate students in their respective higher education institutions' curricula.

Table 1

Have you studied Academic Writing or other writing skills?

	<u>Students</u>	Percentage %	Indicator [Value]	
4 - Have you studied Academic	122	48,2%	Yes	
Writing or other writing skills?	90	35,6%	No	
	41	16,2%	Not sure	

Based on the descriptive data from the cross-tabulation of SPSS version 23, we can see a difference in the percentage of students who have studied academic writing. Specifically, among 1st-year bachelor students, 33.2% responded "Yes" while 21.7% said "No" out of a total of 67.6%. On the other hand, among 3rd-year bachelor students, only 9.9% answered "Yes" while 11.9% said "No" out of a total of 22.5%. This inconsistency in the results could be related to the differences in the Higher Education Institutions (HEIs) curricula.

#### Table 2

	<b>j</b>		Have vo	u studied Acad	lemic Writing	
			or any o	other form of w	vriting skills?	
			Yes	No	Not sure	Total
Circle the	3rd year high	Count	5.0	2.0	4.0	11.0
period/year of the study	school	Expected Count % of Total	5.3 2.0%	3.9 0.8%	1.8 1.6%	11.0 4.3%
cycle you	1st vear	Count	84.0	55.0	32.0	171.0
are in bachelor	bachelor	Expected Count	82.5	60.8	27.7	171.0
		% of Total	33.2%	21.7%	12.6%	67.6%
	3rd year	Count	25.0	30.0	2.0	57.0
	bachelor	Expected Count	27.5	20.3	9.2	57.0
		% of Total	9.9%	11.9%	0.8%	22.5%
	1st year	Count	8.0	3.0	3.0	14.0
	master	Expected Count	6.8	5.0	2.3	14.0
		% of Total	3.2%	1.2%	1.2%	5.5%
Total		Count	122.0	90.0	41.0	253.0
		Expected Count	122.0	90.0	41.0	253.0
		% of Total	48.2%	35.6%	16.2%	100.0%

*Circle the period/year of the study cycle you are in - Have you studied Academic Writing or any other form of writing skills?* 

After analyzing students' responses regarding the academic writing format provided by their universities, it was found that 37.5% had a clear structure or format to follow. In comparison, 19.4% stated that their institutions did not offer any such format. Meanwhile, 43.1% of the students were uncertain whether their universities provided any template to guide them through the writing process.

Table 3

Do you think your school/university/college has a straightforward format/structure of writing for students to use during their studies?

	Students	Percentage %	Indicator [Variable]
8 - Do you think your school/university/college	95	37.5%	Yes
has a straightforward format/structure of writing	49	19.4%	No
for students to use during their studies?	109	43.1%	Not sure

As per objective number 1 and question 7, which asked how students managed to write their course assignments, reports, analysis, research papers, and other such documents, 45.1% of the respondents (114 out of 253) admitted that they "Google it." In comparison, 39.1% confirmed that their professor or tutor provided them with a format, and 15.8% reported seeking help from senior students. When the responses to research questions 8 and 7 were analyzed, it was observed that there is a clear correlation between the absence of a standard writing format and the approach students take when dealing with various assignments, which is to "Google it."

Table 4

How did you manage to write your course assignments/reports/analysis/research papers, etc.?

	<u>Students</u>	<u>Percentage %</u>	Indicator
7- How did you manage	114	45,1%	Google it
to write your course	40	15,8%	Ask older students
assignments/reports/ana	99	39,1	The teacher/professor/ tutor offered
lysis/research papers,			me a format.
etc.?			

To further elaborate and understand the data in Table 3 relating to the research question (i), the results were analyzed using descriptive analysis in SPSS version 23 and presented in Table 4. Crosstabulation was used to observe if there were any changes in the results between 1st-year bachelor students and those in their 3rd year. The data indicated that 67.6% of 1st-year bachelor students referred to Google to manage their writing process, while 28.1% (out of 67.7%) received assistance from professors. The difference in percentage between those receiving assistance from their instructors and those using Google was insignificant.

When observing the responses of 3rd-year bachelor students, it is worth noting a significant difference. Out of the total respondents, 22.5% of students manage their assignments using the Internet, while 12.6% rely on this source of information. Interestingly, 5.9% of them seek assistance from their professors to improve their writing skills. This outcome can be interpreted as a sign of

increased independence among 3rd-year bachelor students. However, they will likely require specific guidance and support since they must work on a thesis dissertation to complete their bachelor's degree.

#### Table 5

*Circle the period/year of the study cycle you are in - How did you manage to write your course assignments/reports/analysis/research papers, etc.?* 

			<u>How di</u>	<u>d you manage</u>	to write your course	
			assignme	nts/reports/ana	lysis/ research papers,	
			<i>.</i> .	<u>etc.</u>	<u>/</u>	
			Google	<u>Ask older</u>	The teacher/	Total
			<u>it</u>	<u>students</u>	professor/tutor	
					<u>offered me a</u>	
					<u>format</u>	
Circle the	3rd year	Count	1.0	2.0	8.0	11.0
period/year	high school	Expected Count	5.0	1.7	4.3	11.0
of the study	-	% of Total	0.4%	0.8%	3.2%	4.3%
cycle you	1st year	Count	75.0	25.0	71.0	171.0
are in	bachelor	Expected Count	77.1	27.0	66.9	171.0
		% of Total	29.6%	9.9%	28.1%	67.6%
	3rd year	Count	32.0	10.0	15.0	57.0
	bachelor	Expected Count	25.7	9.0	22.3	57.0
		% of Total	12.6%	4.0%	5.9%	22.5%
	1st year	Count	6.0	3.0	5.0	14.0
	master	Expected Count	6.3	2.2	5.5	14.0
		% of Total	2.4%	1.2%	2.0%	5.5%
Total		Count	114.0	40.0	99.0	253.0
		Expected Count	114.0	40.0	99.0	253.0
		% of Total	45.1%	15.8%	39.1%	100.0%

Referring to the data from Table 6, connected to the format and the first steps to writing an assignment, 38.7% reported having been delivered a scheme by the professor. In comparison, 35.6% answered that they had an unclear scheme, 20.6% reported following the basic structure "Intro, Body, Conclusion," and 5.1% reported having googled or referred to older students.

#### Table 6

When you start an assignment, do you have a standard structure of all the steps?

	•	÷	· · · · · ·
	Students	Percentage %	Indicator
9 - When you start an	98	38.7%	Yes, I have a clear scheme delivered by
assignment, do you have			the instructor/ professor/teacher/tutor.
a standard structure of	90	35.6%	Yes, but not very clear. I ask around,
all the steps?			google it.
•	13	5.1%	No, just Google or ask former students.
	52	20.6%	Yes, just follow the structure: Intro, Body,
			and Conclusion.

(i) Importance of guidelines and structures for Academic Writing.

Referring to objective number two on the importance of the guidelines and orientation, students' perception is reported as the following: A significant percentage of 66.8% of the respondents were confident to write essays of descriptive, exploratory, and explanatory formats, while 10.7% were confident in writing reports. Regarding research papers, the percentage was notably low (14.2%), followed by 8.3% of the ones who were satisfied with writing an analysis.

Table 7

	<u>Students</u>	Percentage %	Indicator
10 - Circle which of	169	66.8%	Essay (descriptive, exploratory,
these formats you are			explanatory, etc.)
confident you do well.	27	10.7%	Reports
	36	14.2%	Research papers
	21	8.3%	Analysis

Circle which of these formats you are confident you do well.

According to the data, 62.1% reported needing to be more familiar with the terminology used for the first steps of the writing process. 35.2% of the respondents were familiar with all the required terms, while 2.8% needed to know the terminology.

#### Table 8

Are you familiar with these terms: Outline, prewriting, paraphrasing, freewriting, brainstorming?

	<u>Students</u>	Percentage %	Indicator
11 - Are you familiar with these terms:	89	35.2%	Yes, all of them
Outline, prewriting, paraphrasing,	157	62.1%	Some of them
freewriting, brainstorming?	7	2.8%	No, none

In line with objective number 2, question 16, "Would it be useful for you to have a clear format of writing for you to follow, for emails, memos, documents, papers, assignments, etc.?" a significant of 86.2% responded, "Yes, absolutely." In comparison, only 11.2% considered it "not necessary," and 2.8% answered that they were unsure about it.

Table 9

Would it be useful for you to have a clear writing format for emails, memos, documents, papers, assignments, etc.?

	Students	<u>Percentage %</u>	Indicator
16 - Would it be useful for you to have a clear	218	86.2%	Yes, absolutely
writing format for emails, memos, documents,	28	11.1%	No, not necessary
papers, assignments, etc.?	7	2.8%	Not sure

Observing the data from question 17, "Do you think not knowing how to write/cite/paraphrase something leads people to copy things/materials from the internet/books/journals?" A considerably high percentage of 47.8% responded, "Yes, absolutely." In comparison, 34% answered with "yes, probably," and 5.5% considered it unrelated.

Table 10

Do you think not knowing how to write/cite/paraphrase something leads people to copy things/materials from the internet/books/journals?

	<u>Students</u>	<u>Percentage %</u>	<b>Indicator</b>
17 - Do you think not knowing how to	121	47.8%	Yes, absolutely
write/cite/paraphrase something leads	32	12.6%	No, not necessarily
people to copy things/materials from the	86	34%	Yes, probably
internet/books/journals?	14	5.5%	No, it is not related

Reviewing research question number (ii) whether there is a relation between lack of academic writing in the curricula and academic integrity, the responses from the SPSS 23 with cross-tabulation showed that out of 72.3% of the responders which during their writing process they just selected and then used the materials, 32.6% considered as absolutely relatable to the absence of writing skills. While out of 22.9% of the responses that used paraphrasing and summarizing the materials found, 10.7% considered it 'Yes, absolutely,' and 10.7% "Yes, probably' connected to the lack of academic writing (Table 11).

Table 11

Do you think not knowing how to write/cite/paraphrase somethind leads people to copy things/materials from the internet/book/journals? - Do you know how to use the selected materials, what to do with them?

		Do you know how to use the selected				
		materials, what to do with them?				
			<u>I select</u>	<u>I copy the</u>	<u>I paraphrase</u>	Total
			the most	<u>materials</u>	<u>or summarize</u>	
		1	important	and include	<u>what I find</u>	
			facts and	them in the		
			use them.	<u>paper</u>		
Do you think not	Yes,	Count	90.0	4.0	27.0	121.0
knowing how to	absolutely	F (10 )	07.5	- <b>-</b>	27.7	101.0
write/cite/paraphrase		Expected Count	87.5	5.7	27.7	121.0
somethind leads		% of Total	35.6%	1.6%	10.7%	47.8%
neonle to conv	No, not	Count	24.0	5.0	3.0	32.0
things/materials from	necessarily	Expected Count	23.1	1.5	7.3	32.0
		% of Total	9.5%	2.0%	1.2%	12.6%
ine miemel/ DOOK	Yes,	Count	57.0	2.0	27.0	86.0
journais?	probably	Expected Count	62.2	4.1	19.7	86.0
		% of Total	22.5%	0.8%	10.7%	34.0%
	No, it is no	Count	12.0	1.0	1.0	14.0
related	related	Expected Count	10.1	0.7	3.2	14.0
		% of Total	4.7%	0.4%	0.4%	5.5%
Total		Count	183.0	12.0	58.0	253.0
		Expected Count	183.0	12.0	58.0	253.0
		% of Total	72.3%	4.7%	22.9%	100.0%

(iii) What kind of perception do students have of providing Academic Writing as a mandatory course for HEIs?

Referring to objective number 1 of this research study, on the importance of academic writing in the university, and to research question number (iii), students' perception was analyzed from descriptive statistics. For questions number 15 "Do you think academic writing should be mandatory in every higher education institution?" 57,3 percent of the responses considered the introduction of academic writing as a mandatory course necessary. Meanwhile, 36.4 % of the respondents considered it essential but not a compulsory course. The responses that were deemed unnecessary and were not sure about were 3.2% each.

Table 12

Do you think academic writing should be made mandatory in every higher educational institution?

	<u>Students</u>	Percentage %	Indicator
15 - Do you think academic writing should	145	57.3%	Yes, absolutely
be made mandatory in every higher	92	36.4%	Yes, but not mandatory
educational institution?	8	3.2%	No, not necessarily
	8	3.2%	Not sure

Referring to the research question (iii) related to the need for Academic Writing to be mandatory in the university, the respondents in my research reported this way: 145 out of 253 said they would strongly agree to have Academic Writing as part of the university curriculum. Ninety-two respondents reported agreeing to have the academic writing course in the university curriculum, but it might be optional. Eight of them said it might not be necessary, and eight others responded that they were unsure.

#### 4 Limitations and recommendations

Based on this research and referring to the literature review coming from different authors of countries that have shared a common political and cultural path, my recommendations for the policymaking institutions such as the Ministry of Education and HEIs would be to provide a set of theoretical and methodological rules to design academic writing courses in Albanian; Offer academic writing programs for faculty members and researchers in both Albanian and English. Introducing Academic Writing as a mandatory course for every study program certainly follows practices coming from Western HEIs. Support collaboration among disciplinary professors and linguistics to guide and orient an improvement on the existing curricula; interact with other universities in organizing and conducting seminars, lectures, and conferences aimed at distributing this new approach of writing with all related competencies; promote the development of teacher training programs delivered from experts of academic writing in both Albanian and English. The results of this research should be helpful to Albanian Higher Education Institutions, Ministry of Education, Career Centers, and Human Resources Agencies. HEIs would focus on integrating academic writing into their curricula, which would create and open up the opportunity for students to express and show their critical thinking through writing skills. The limitation of this research was due to the COVID-19 pandemic, where all the universities were delivering classes online, and the majority of the administrative staff were working from home, making it challenging to attain the syllabi of some faculties that were not provided on the

official websites. Therefore, student gatherings were restricted, which brought the only option of delivering the questionnaire online. Consequently, the results presented in the paper refer to the level of equity and impartiality that respondents have had while self-regulating the questionnaire online.

#### Conclusions

This research has shown students' perception of academic writing during their learning process in higher education institutions and how exposure to this course would facilitate and assist their writing skills on format and content regarding their assignments, research papers, etc. The data coming through the questionnaire constructed by the researcher - referring to the situation of academic writing - was addressed to 253 students from public and non-public HEIs. The students reported findings such as:

- Students of HEIs show a significant absence regarding the writing process, mostly related to basic skills in format, content, and the ability to process the materials needed.
- Despite being aware of the importance of acquiring the ability to present decent written assignments as needed from the academic aspect, students preferred mostly the internet to refer to for guidance over assistance from their professors.
- Students' lack of writing skills, such as paraphrasing, summarizing, and using proper referencing, which are taught through academic writing, has led to a lack of academic integrity.
- Students' perception of the importance of academic writing and the possibility of being offered as a mandatory course in HEIs was significantly high, considering it necessary.

#### References

- Beci, B. (2019). Gjuha shqipe në arsimin parauniversitar, shumë energji për rezultate minimale. Retrieved from http://www.panorama.com.al/gjuha-shqipe-ne-arsiminparauniversitar-shume-energji-per-rezultate-minimale/
- Çelik, S. (2020). Building critical academic writing skills: The impact of instructor feedback on Turkish ELT graduate students. *The Electronic Journal for English as* a Second Language, 24(3), 1-18.

Eco, U. (2017). Come si fa una tesi di laurea. Milan: La Nave di Teseo Editore spa.

- Ivanova, I. (2020). Making sense of research: University students' difficulties in writing academic summaries. *Studies in Linguistics, Culture, and FLT*, 8(1), 16-34.
- Korotkina, I. (2018). Russian educational research papers in international publications: The urge for academic writing. In *EEIA 2018 - International Conference "Education Environment for the Information Age"*. https://doi.org/10.15405/epsbs. 2018.09.02.36

- Lafe, E. (2014). Bibliografie lëndës së revistë për studime filologjike e ndarë në fusha. *Studime Filologjike*, 67(1-2), 375-386.
- Leki, I., & Carson, J. G. (1994). Students' perceptions of EAP writing instruction and writing needs across the disciplines. *TESOL Quarterly*, 28(1), 81101.
- Leon, L. (2023). Teaching academic writing as a method of improving communication skills. Acta Marisiensis Philologia, 5(1), 1-7. https://doi.org/10.2478/amph-2023-0086
- Oshima, A., & Hogue, A. (2007). *Introduction to Academic Writing* (3rd ed.). Pearson Education, Inc.
- Lamallari, B., Madhi, G., & Shpuza, M. (2016). Academic (Dis)Honesty in Albania: Concerns on Plagiarism. Retrieved from https://www.researchgate.net/publication/ 303720496\_Academic\_Dishonesty\_in\_Albania\_Concerns\_on\_Plagiarism
- Ramazan, S. (2016). *Më shumë vëmendje gjuhës shqipe në shkollat e mesme*. Retrieved from https://sot.com.al/opinion-editorial/m%C3%AB-shum%C3%AB-v%C3%AB mendje-gjuh%C3%ABs-shqipe-n%C3%AB-shkollat-e-mesme

Shkurtaj, G. (2017). Urgjenca gjuhësore. Naimi, Tiranë.
## Implementing Competency-Based Language Teaching Assessment and Achievement of Competency in Speaking Skills at Grade Four

## Gebisa Ayana Derseh - Sherif Ali Ahmed -Rufael Disasa Warabu\*

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#### Abstract:

*Introduction:* The study aimed to investigate the implementation of Competency-Based Language Teaching assessment and proficiency in English speaking skills.

*Methods:* The study adopted a mixed methods approach and descriptive survey design. A random sample of 97 grade four English teachers and 56 grade four students were selected. The study utilized various methods to collect data, including a questionnaire, observation, interview, and oral test. The study employed both quantitative and qualitative data analysis methods.

**Results:** The result showed that there was limited implementation of Competency-Based Language Teaching assessment in speaking skills. The findings also showed that the teachers' awareness of the purpose of the speaking skills assessment in Competency-Based Language Teaching was below average. The study also found that students scored below satisfactory in speaking skills competencies, indicating that they did not achieve the intended level of mastery.

*Discussion:* Teachers' awareness of the assessment's aim must be ensured to guarantee the implementation of the Competency-Based Language Teaching assessment. Competency-Based Language Teaching assessment also should ensure the achievement of learners' speaking competency.

*Limitations:* The number of schools selected as the sample was only four for the questionnaire and achievement test.

<sup>\*</sup> Gebisa Ayana Derseh, Wollega University, Department of English, Nekemte, Ethiopia; gabissaayana@gmail.com

Sherif Ali Ahmed, Wollega University, Department of English, Nekemte, Ethiopia; alisherif29@yahoo.com

Rufael Disasa Warabu, Wollega University, Department of English, Nekemte, Ethiopia; rufittii5@gmail.com

*Conclusions:* The study recommends that teachers implement Competency-Based Language Teaching assessments practically in spoken language instruction, be aware of the purpose of Competency-Based Language Teaching assessments in speaking skills, and promote learners based on the mastery of competency at each level.

Key words: assessment, speaking skills, competency, achievement, mastery.

#### Introduction

Competency-Based Education (CBE) has different models and elements peculiar to each model. McClarty and Gaertner (2015) demonstrated that CBE models can take different forms, but most programs include two common elements: a competency framework and competency assessments. The competency framework describes the "skills, abilities, and knowledge needed to perform a specific task" (McClarty & Gaertner, 2015, p. 2). Competencies must be clearly defined, measurable, and related to the knowledge or skills needed for future endeavors, such as additional education or employment. The second common element of CBE models is competency assessment. Wang and Maa (2022) also stated that the two key components of CBE models are meaningful learning outcomes and performance-based assessment. They asserted that assessment is one of the critical components that marked CBE. Assessors and students can make objective judgments based on clearly stated outcomes to certify students' progress (Wolf, 1995). Competency assessments are used to determine mastery. Hence, teachers use CBE assessment to communicate with students regarding progress toward competency and advance students to other competencies (Sutherland & Strunk, 2021).

Competency-Based Language Teaching (CBLT) is the application of CBE in teaching and assessment of language instruction. Competency-Based Language Teaching (CBLT) assessment involves testing competencies consisting of a description of the essential skills, knowledge, and attitudes required for effective performance of a real-life activity in language instruction (Tabe, 2019). It puts all the qualities of CBE assessment to measure skills of language. When testing for CBLT, an assessment is conducted to evaluate if learners can perform effectively in real-life scenarios.

Ethiopia developed 'The Minimum Learning Competency (MLC)' by the syllabus of each subject, and set competencies based on its framework. The new curriculum framework, which is based on the Competency-Based Approach, indicates that assessment must measure students' competency in the specified skills (Ministry of Education, 2009). The framework stated that assessment "should ensure that students at all levels can genuinely achieve the competencies expected of them" (Ministry of Education, 2009, p. 35). It is directed at

monitoring competency and is thus indispensable. Concerning oral assessment, the framework puts clearly that assessing oral work "is important since it helps the students to develop their listening and speaking skills, which are important in the development of reading, writing and mathematical concepts, life skills and values" (Ministry of Education, 2009, p. 35). Thus, Competency-Based Language Teaching assessment in speaking skills instruction is administered to evaluate competency in oral communication skills. The goal is to test whether learners achieved the speaking competency specified in the syllabus.

However, assessment as an important element of Competency-Based Education lacks sufficient rigorous data at lower grades where the focus of learning language is mainly oral skills. In addition, there is a lack of information regarding students' competency levels in speaking proficiency in comparison to the Minimum Learning Competency (MLC) set for speaking skills. It is not widely known how the CBLT assessment can support the improvement of students' speaking skills performance. Although a new curriculum that follows a Competency-Based Approach has been implemented for more than a decade, there is little research conducted on the implementation to build competency-based learning that provides clear, valid, and defendable assessments.

Some studies on the assessment of speaking skills in competency-based language teaching (CBLT) have been conducted worldwide. For instance, Iwikotan (2021) conducted a study to design tests under the CBLT approach, revealing that teachers found it challenging to frame task directions. Akongoh (2021) conducted another study that examined the contribution of teacher training to the assessment of speaking within the principles of CBLT. The result showed that teacher training significantly influenced the neglect of speaking in assessments. Tabe's (2019) study aimed to examine the assessment tactics of junior secondary school teachers to check if they aligned with the principles of competency-based assessment. The finding indicated that the assessment tactics used by teachers were not consistent with the required competency-based assessment. Osman's (2018) study aimed to investigate the practices and challenges of assessing EFLspeaking skills among teachers. The study revealed that teachers provided enough time for assessing speaking skills and were careful to differentiate speaking assessment tasks. However, teachers faced practicality issues when assessing EFL-speaking skills.

In addition, there are several limitations to the previous studies conducted so far. Previous studies on implementing CBLT assessment have focused on teachers' knowledge of competency and assessment principles (Tabe, 2019). However, it sounds relevant to consider the components of assessment relevant to evaluate mastery of the competency. The new paradigm in assessment practices informs that multiple measures and performance in authentic tasks and oral assessments as content should be the focus (Griffith et al., 2014)). Classroom assessment

practices were studied more at the secondary school level than at the primary level (Marks, 2014; Meskerem, 2017; Tulu, Tolosa, & J-F, 2018). These studies did not aim to measure students' speaking skills competency and practice competency-based assessment. CBLT assessment practices have little data on primary school speaking skills, despite primary education being the foundation. It is important to investigate the implementation of CBLT assessment and the proficiency of learners' competency in speaking skills.

Thus, this study aimed to look into the implementation of CBLT assessment and investigate learners' competency level in speaking skills. To achieve our objectives, the study has focused on answering the following research queries.

- 1. To what extent are different CBLT assessment techniques implemented in assessing speaking skills?
- 2. What is the awareness level of teachers on what CBLT components of assessment measure?
- 3. What is the student's competency level of speaking skills?

#### **1** Literature review

#### 1.1 Competency-based assessment

There are several components in the CBLT model. Assessment is one of the core components of the CBLT framework and is related to mastery of competency. Competency-based assessment is defined as the assessment of a person's competence against prescribed standards of performance (Tabe, 2019). It must include evidence to demonstrate student assessment of knowledge and skills associated with specified competencies (McClarty & Gaertner, 2015). Each assignment must be directly aligned to measure lesson competencies.

CBLT establishes a direct link to criterion-based assessment. In this case, performance criteria are the basis for the assessment of language competencies defined as essential skills, knowledge, and attitudes, required for the effective performance of a real-world task (Richards & Rogers, 2014). He also asserts that teachers are required to change from norm-referenced to criterion-referenced judgment of learners' capabilities or competencies. Criteria are often given in the form of rubrics that can be either analytic (specification of parts) or holistic (looking at overall performance).

Assessment in CBLT takes the form that is known as Authentic Assessment. Authentic assessments engage students in tasks similar in form to the tasks in which learners will engage in their lives outside the classroom. Black and William (1998) stated that authentic assessment probes for learners' higher-order skills, such as critical reasoning and problem-solving, rather than simply checking for memorized information. It is done in the form of portfolios, projects, oral presentations, self and peer assessments, interviews and conferencing, tests, and examinations. The emphasis is mostly on formative

assessments as opposed to summative assessments. Kouwenhoven (2003) argues that authentic assessment methods are more useful for a competency-based curriculum than other forms of assessment because they provide opportunities for learners to demonstrate the competencies they have mastered in real life. He noted that in competency-based education, performance assessment is carried out by giving the learner a clearly defined task and a list of explicit criteria for assessing the performance or product. Hence, competency-based education emphasizes the application of knowledge to integrate theory and practice in real or analogous life situations.

#### 1.2 Assessment of speaking in the context of CBLT

Demonstrated mastery of performance objectives is the major principle of CBLT. Thus, CBLT lessons are developed around competencies and the skills necessary for mastery (Griffith & Lim, 2014). In connection with speaking skills, effective instruction must ensure that the learners achieve adequate speaking skills. To this end, speaking should be assessed through oral tests that genuinely measure speaking performance and not just speaking knowledge (Allison, 1999). Moreover, in a CBLT model, students are expected to develop their speaking skills which will enable them to actively engage in communications and problem-solving situations inside the classroom or in their everyday situations. So, to strengthen the learners' speaking skills and make the criterion of "adequate skills" attainable, it is necessary to assess the learners through formative and summative tests. More specifically, learners should be evaluated through various activities regularly, as well as through class tests so that the teacher can understand the strengths and weaknesses of students about speaking skills and respond appropriately by remediation.

In competency-based practice, to move to the next level, learners need to adequately display mastery. The assessment practice allows students to retake assessments if they failed to master a course competency, or did not perform well through reassessment and recovery (Richards & Rodgers, 2014). Reassessment had many forms, including alternative versions of the previous assessment and new forms of assessment. Students who fail a course can opt for various recovery options, such as online learning and summer school programs. In both reassessment and recovery, the onus was on the student to take responsibility for developing a plan to relearn the material.

#### 1.3 Components of assessment in speaking skills

Assessors use several tools for the assessment of speaking skills as a part of instruction. Most of the tools used in assessing speaking skills should be different from paper and pencil tests. Competency assessment gives priority to the tools that can display learners' oral skills through oral performance. This

kind of assessment discourages paper-and-pencil testing because they are only able to show a learner's knowledge. Paper-and-pencil testing may be able to show a learner's knowledge, but such testing could not show a learner's ability to use language in context (performance) (Griffith & Lim, 2014). They rarely show a learner's ability to use language in context. Instead, they should be tools that can display learners' oral skills through oral performance. CBLT assessment uses tools like interviews, role play, discussion, presentation, explanation, picture description, narrative, and instruction tasks in speaking skills tests.

#### 1.4 Purposes of assessment in the revised curriculum framework

Assessment has several purposes. It provides feedback on learners' strengths and weaknesses, students' progress, evidence of the achievement of course goals, records of achievement, encouraging learners to take responsibility for their learning, and information for accountability purposes (Nunan, 2015). Assessment of the speaking skills is carried out in the framework of the general purpose mentioned here. However, experts in the subject have established certain objectives for speaking abilities. This includes assigning pupils to study groups, ascertaining about the student's current skills and competencies (Goh & Burns, 2012).

Similarly, the new curriculum framework of Ethiopia puts much emphasis on the assessment and attributes a significant place for it. Parents and education experts are dissatisfied with the assessment of the students' language skills and their competency. So, the government has serious concerns about the purpose of the assessment. The new curriculum framework states that "assessment should ensure that students at all levels are genuinely able to achieve the competencies expected of them" (MoE, 2009, p. 35). This suggests that assessment is the channel through which teachers confirm students' mastery of the competency. This method allows daily tracking of students' progress in achieving their competencies.

#### 1.5 Scoring procedure

There are three main methods for scoring students' speaking skills. These are objective scoring, analytic scoring, and holistic scoring. Objective scoring is done using a scoring key. Usually, there is one and only one correct answer to each objectively scored test item. In contrast, analytic scoring and holistic scoring both involve some judgment and usually involve training raters to use the assessment system. In holistic ratings, a speech sample (such as an oral interview, or a recorded conversation) is given one overall evaluation, which may be a rating (a "six" on a ten-point scale) or a designation (pass versus not pass, or the "advanced" designation in a system that consists of novice,

intermediate, advanced, or superior categories) (Nation & Newton, 2009; Thornbury, 2005; Özdil & Duran, 2023).

#### 2 Materials and methods

The researchers utilized a mixed-method approach to gain an in-depth understanding of the implementation of CBLT assessment and students' achievement in speaking skills competency. The study also used a descriptive survey design to explain how Grade 4 English teachers incorporate CBLT assessment to aid the acquisition of speaking competencies in students. The study needs data from a wide area to address its research issues, which is why a survey methodology was chosen.

#### 2.1 Setting

The study was conducted at primary schools in East Wollega Zone, Oromia Region, Ethiopia. Oromia region was selected because firstly, as the Competency-Based Curriculum Framework is uniformly introduced across the country, the region can be seen as representative of the general implementation of the curriculum. Selecting this region can reflect the other regions' status as all regions follow a similar primary English curriculum framework that follows CBLT. Secondly, there is a range of CBE training to implement at primary schools with the cooperation of UNICEF, the Ministry of Education, and the Oromia Regional Bureau of Education.

#### 2.2 Participants of the study and sampling technique

Primary school grade four English teachers and students were participants in the study. There are seventeen (17) districts in the East Wollega Zone. Three districts - Diga, Wayu Tuka, and Wama Hagalo were selected through a simple random technique. The three districts have 141 primary school English teachers. From this population, 108 teachers were selected for the study. According to Saunders et al. (2016), with a margin of error of 5% and a 95% confidence level, the sample size required for the target population of 150 is 108. In total, 108 questionnaires were handed out personally and with the help of school supervisors and 97 were returned. Grade Four Students N=56 were selected randomly for oral tests. Five schools with their teachers were selected randomly for observation and interview, four teachers were from Diga and Gute, and one was from Wama Hagalo districts.

#### 2.3 Data collection and procedure

Questionnaires, interviews, observations, and oral tests were employed to obtain data. Quantitative data were obtained through questionnaires and oral tests. The questionnaire which has 26 items, a checklist for observation, and interview

prompts were developed based on an extensive review of the literature. The Cronbach alpha value for the internal consistency of the questionnaire was .872. The questionnaire was tested in a pilot study with thirty-three participants to see if they understood all the questions and if the questions addressed the type of information sought. English teachers rated Likert-type questions. To obtain qualitative data, interviews, and observations were employed. Observation was carried out at five schools for seven days at each school to obtain data related to how CBLT assessment is conducted during speaking skills instruction. Besides, the interview was conducted with teachers who were observed in the classroom to obtain information about their practice of CBLT implementation.

Students of grade 4 sat for oral tests to assess speaking competency. The tests were conducted individually, by the researcher, in a free place outside of the class. The tool for the oral test was the interview and each candidate was interviewed individually. Participants' utterances were audio-recorded, with their permission, then transcribed for analysis. The oral test was created based on the syllabus specification for the speaking skills competency which consisted of seven items: introducing yourself, introducing people, greeting each other, talking about their school, asking for and giving personal details including their family, asking and answering questions about everyday scenes, and describing places and household objects. The task used seven competencies covering 24 target sentences with different grammar structures. The tasks during the interview were rated for fluency, grammar, pronunciation, and vocabulary.

#### 2.4 Data analysis

The quantitative data were analyzed and interpreted using descriptive statistical methods. Descriptive statistical methods were used to describe the mean score and percentage of each measured variable. An oral test, which was administered to assess the speaking competency of learners, was conducted and rated by the examiners and other assessors. Different raters were assigned to evaluate and measure the recordings. As stated by Surkamp and Viebrock, (2018), if recordings are made, they can then be graded independently by different raters. The test employs a rating scale to measure student's performance. This scale assesses students on categories of fluency, grammar, pronunciation, and vocabulary. The scoring of the result followed analytic ways of scoring in this study. The candidates could achieve a minimum of one and a maximum of five points within each category according to the descriptors for each point. The additional way used to analyze the data obtained was an analysis of target sentences produced by each candidate under each competency specified. In the analysis production, relevance to the competency identified and accuracy were emphasized. So, target sentences were selected from activities related to the

competencies set in the syllabus contentment analysis was made to conclude the competency of the candidates.

Data drawn from interviews and class observation were analyzed qualitatively and thematically. They were analyzed using descriptive content analysis. Data recorded were transcribed, translated, and codified. After providing codes, there was the organization of categories and themes, creating thematic content, and finally presenting comments in the form of an argument (Creswell, 2012).

#### 3 Results

3.1 Techniques of assessment

Table 1

Technie	nues	of as	sessment	
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	$\underline{N}$	Mean	Std. Deviation
Teachers administer oral tests in the form of presentation	96	2.01	1.129
Learners are assessed with role-playing	97	2.11	1.198
Discussing missed items in the picture	97	2.27	1.350
Interview with teacher enabling to demonstrate spoken skills	97	2.28	1.289
Using description tasks for testing students' competency	96	2.04	1.075
Speaking is assessed through narrative tasks	96	2.25	1.105
Instruction tasks are used in the assessment	97	2.14	1.190
Valid N (listwise)	94		

Respondents asked to rate items listed concerning techniques of assessment they employ in their assessment. Responses from participants show that the practice of using components of assessment in assessing speaking skills competency are implemented at the mean of M=2.17, SD=1.19. Their response indicates that components of assessment, such as oral tests in the form of presentation (M=2.01, SD=1.129), role-play (M=2.11, SD=1.198), interview with teacher enabling to demonstrate spoken skills (M=2.28, SD=1.289), discussing missed items in the picture (M=2.27, SD=1.350), narrative tasks (M=2.25, SD=1.105), description tasks (M=2.04, SD=1.075), and giving instruction as a task (M=2.14, SD=1.190), all are practiced in speaking skills at below average (Table 4).

In one on one interview, participants shared their experience of implementing CBLT assessment in speaking skills. T1 (Teacher at Mulisa School) mentioned a technique of assessing speaking skills, he gave: "tests to students during the mid or final exam". Another participant T2 (Teacher at Kolobo School) agreed, "learners were assessed while they are completing the tasks". Another respondent, T4 (Teacher at Ariya Jawi School) added to the list: "asking questions and oral presentation". Learners find questions in the class work, homework and in the activities, but oral presentation is the form of assessment

attracts attention. This is because it involves oral production. T3 (Teacher at Gute School) shared "no test is conducted for speaking skills because there is lack of material and time". In general, response from interview indicates that tests, class works and home works are employed during assessment.

Response for open questions from participants in the questionnaire indicated that different forms of assessment are being implemented. According to the respondents, the techniques used in the assessment of the speaking skills were administering exams (tests), providing classwork such as completing a task and presenting to the class, asking oral question, continues assessment, class participation and asking questions. One of the respondents shared that he "checked students' skills and behavior through tests". Another respondent wrote his response "asking oral question, giving tests and giving class work". One way or the other, respondents indicated that there are some techniques of assessing students. There are participants who responded in a way that "class participation" in the class is considered as technique of assessment.

The observation data showed that teachers rarely implement different components of CBLT assessments in the teaching of speaking skills. Teachers evaluated learners' comprehension of the lesson's content, but did not assess their ability to speak competently. Ample time was given to the activities of listening to teachers' explanation on grammar, writing and reading. Data obtained from observation are not consistent with the data obtained from questionnaire, interview and open questions. Questionnaire and interview data indicated that there are signs of using different components of assessment. However, the analyzed observation data do not provide evidence of assessment of the learners' speaking skills on a regular basis. The practice of using different forms of assessment expected to be implemented during instruction to measure oral performance was not observed.

#### 3.2 Teachers' awareness on what CBLT assessment components measure

#### Table 2

	N	Mean	Std. Deviation
Students are shown what good work looks like by assessing their own work against the criteria.	96	2.23	1.209
Continuous assessment identify what students can do and know.	97	1.95	.993
Measure competency at the end of the lesson.	97	1.96	.934
Speaking skills are given more emphasis compared with grammar.	97	2.09	1.061
Measures competency-based performances regarding speaking skills.	97	1.90	1.005
Achievement reports identify student's proficiency levels on standards.	97	2.15	1.064
Formative assessments show student proficiency levels in standards.	97	2.28	1.484
Valid N (listwise)	96		

#### What components of assessment measures

Teachers responded to questions about the purpose of assessment in the context of CBLT during speaking skills instruction. Based on Table 2, the awareness of teachers on the practice of putting components of assessment for the purpose intended is below average (M=2.08, SD=1.107). For example, their understanding of putting assessment for the practice of assessing students' proficiency level is M=2.28, SD=1.484. Results show that assessment has little purpose for students in assessing their work against the criteria (M=2.23, SD=1.209). Achievement reports identify student's proficiency levels in standards (M=2.15, SD=1.064). Speaking skills are given more emphasis compared with grammar M=2.09, SD=1.061. In the implementation of the CBLT approach in speaking skills instruction, the practice of "measuring competency at the end of the lesson" in general and specifically "measuring competency-based performances" regarding speaking skills are by far below average, M=1.96, SD=.93, continuous assessment identify what students can do and know M=1.95, SD=.993 and M=1.90, SD=1.00 respectively (Table 2).

Respondents of the interview reacted to the questions on what the components of assessment perform. T1 said, "Assessment helped me to give credit for my student's work." Another respondent T3 said, "Assessment components are useful in identifying one student from the other." T4 expressed his idea through the question: "How can a teacher get proficient learner? One can produce competent students through assessment." Respondents T2, and T5 were reluctant to give their opinion to this question. Their response was not direct. Respondent T2 said, "Implementing speaking test assessment is difficult, because there is no sufficient time and material, so, it is not easy to know the impact of assessment." Another respondent T5 said, "Students are required to show competency and have good results, but the practice of assessing is available."

Observation data shows assessment purpose is limited to eliciting an understanding of the day's lesson content. During all the observation sessions teachers posed a few questions to check students' concerns about the lesson. They asked students questions unrelated to the assessment of speaking competency. Teachers were not observed testing speaking skills. As a result, no sign of purposeful and targeted assessment of speaking was observed. There was no assessment of speaking and there was also no awareness of the purpose for assessment of speaking.

#### 3.3 Students' achievement in speaking skills competency

The following tables show the results of oral tests of Grade Four students from four schools in four districts. The researcher assessed speaking skills competency through oral test and presented in the table that follows. Achievement in the competency of students was assessed using oral tests. Whether any difference

occurs 2 scorers marked students' performance to see if there is any significant difference in the results.

Table 3

Descriptive Statistics for speaking shirts competency test	Descriptive Statistics	for speaking	skills competency test
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	N	Minimum	Maximum	<u>Mean</u>	Std. Deviation
Grammar	56	1.30	3.00	1.86	.306
Pronunciation	56	1.75	2.25	1.96	.154
Vocabulary	56	1.50	3.00	2.00	.319
Fluency	56	1.80	2.50	2.02	.135
Valid N	56				

The table shows that all the components of the speaking skills are at the mean below average. The test result shows that fluency is the better result recorded, with the mean M=2.02, yet it is below the average. In the order of the results recorded, vocabulary is the next better result, with M=2.00, pronunciation M=1.96 and grammar M=1.86, all below the average. The overall average for the four criteria was 1.96.

Table 4

statistics showing competencies and culturates					perjointa	nee		
		Greeting	Self-	Talk about	Personal	Introducing	Ask and answer	Describe
			Introduction	school	details with	others	about everyday	household
					family		scene	objects [Variable]
NT	Valid	48	54	8	1	0	0	0
Ν	Missing	8	2	48	56	56	56	56

Statistics showing competencies and candidates' performance

As can be seen from Table 4 candidates' results show low performance in the competencies identified. The result shown in the missing row in the table indicates students who did not respond to the oral test in any way. In the table, the competencies identified are greeting, self-introduction, talking about school, personal details including family, introducing others, asking and answering about everyday scenes, and describing household objects. Number of participants in the test is 56 students. The majority of the students 54/56 (96%) could demonstrate mastery of 'self-introduction'. The vast majority 48/56 (85%) again could demonstrate mastery of 'greeting'. However, only 8/56 (14%) students could demonstrate mastery in 'talking about their school'. In the fourth competency in which learners are required to talk about, 'personal details including family', only one student responded accurately. The other three competencies did not get any response from the candidates.

#### Table 5

Target sentences produced by students	Frequency	Percent
Good morning.	35	62.5
I am fine thank you.	18	32.1
My name is Lalisa.	47	83.9
I am from Tinfa.	0	0
I am 10 years' old.	1	1.8
My height is 1.3m tall.	1	1.8
I am a student.	8	14.3
I like banana, I like potato.	1	1.8
I like English.	0	0
My school name is Tinfa.	2	3.6
There is a football field.	0	0
It is big/small.	1	1.8
This is my friend.	0	0
His name is Yohannes.	1	1.8
I have brothers and sisters.	0	0
I have 2 brothers and 3 sisters.	0	0
My brother is in grade 2.	0	0
My brother is in grade 2.	0	0
It is bright, it is sunny.	0	0
I have a friend; his name is Girma.	0	0
Knife is used for cutting.	0	0
He is tall.	1	1.8

Target sentences analyzed in the competency identified

Target sentences are possible sentences expected to be constructed by learners in the context of competency. The teachers know, the syllabus bears it and student text encourages similar sentences. A student who has mastered the competency can produce utterances of greeting using appropriate expressions such as good morning, and good afternoon. Students who could demonstrate this skill of greeting are 35 (62.5%). Students who could respond to greetings using the expression, "I am fine, thank you, and you?" are 18 (32%). In the competency of self-introduction and giving personal details one of the sentences suitable for conveying the message is "My name is Lalisa." Students who could say it were 47 (83.9%). However, other essential expressions needed in the competency of self-introduction and giving personal details were poorly dealt with. A few students produced sentences like "I am a student." 8 (14.3%) and "I like banana/I like potato." 1 (1.8%), "I am 10 years old." 1/56, "My height is 1.3 m." 1/56. All students were not able to produce other expressions useful in talking about themselves: "I am from Tinfa.", "I am Grade 4 student.", and "I like English" or similar construction to talk about their address and their likes.

The third competency is talking about their school. Candidates were required to produce sentences used to talk about their school. For example, "My school

name is...' 2 (3.6%) and "The school compound is big/small.", only one (1.8%) student responded to the production. Expressions useful in talking about the school, for example, "There is a football field." or sentences similar with it not observed. "Talking about the family" is the fourth competency in which a few students show signs of producing a few sentences like "Yes, I have a family." (1.8%). No candidate produced sentences useful to express family: "I have brothers & sisters.", "My brother is in grade 2.", and "My mother's name is Gadise." or similar additional expressions which are useful in talking about family at this level.

For the other competencies, 'Introducing others, 'Ask and answer about everyday scenes' and 'Describing household objects', learners could not answer and there were no sentences produced. 'Introducing others' has four items as target sentences. No sentence was produced. 'Ask and answer about everyday scene' has two sentences as an immediate target sentence. 'Describe household objects' has two initial target structures. Altogether, in three of the competencies, no students produce a sentence.

#### 4 Discussion

The results indicated that there is little practice in using different components of assessment to assess speaking skills competency. Despite implementing different techniques of assessment as the principle of CBLT, several components of assessments were utilized at below average in the speaking skills to assess competency. According to respondents, oral tests in the form of presentation, role-play, interaction with teacher enabling to demonstrate spoken skills, discussing missed items in the picture, narrative tasks, description tasks, and giving instruction tasks were used in the assessment at below average. This finding is concurrent with a study conducted by other researchers. For example, the findings of a study by Tabe (2019) revealed that the assessment tactics used by teachers do not reflect what is required of the competency-based assessment. Rather, the teachers continue to follow the objective-based approach, and thus structuralism and linguistic input are prioritized over functionality and usage required of the current methods. Another principle of CBLT assessment is functional, meaning that questions have relevance to functionality. All the listed items to be rated by respondents were techniques that appeal to the imagination of the learners about the use of language in real-life situations. The components of assessment such as the provision of tasks to test the competency of students, and administration of oral tests in the form of presentation, interview, and roleplay are functional. However, techniques relevant to functionality were not in place to assess the competency of learners to use language for real-life situations. Competency-based assessments must include evidence to demonstrate student assessment of knowledge and skills associated with specified competencies

(McClarty & Gaertner, 2015). For this purpose, there should be components of assessment that can measure students' performance in speaking skills. Even if the syllabus outlines the competencies, many teachers fail to apply the assessment components that are necessary to determine the student's understanding of the material.

Some participants responded in a way that "class participation" in the class is considered a technique of assessment. However, in CBLT, assessment is mainly conducted to confirm that learners have mastered the competency. So, class participation does not indicate mastery of competency. It is a class environment that facilitates learning for more performance, not an assessment tool. According to Hanaysha, Shriedeh, and In'airat (2023), the classroom environment was found significant predictor of both academic performance and engagement.

Data collected through observation showed that teachers focus on assessing other language skills rather than speaking skills. Activities performed in the class targeted other skills excluding speaking skills. Teachers provided a few activities that they performed through discussion. However, assessments focusing on speaking skills competency were not observed in the class. Teachers were observed tending to overlook speaking activities and their assessment, conversely, learners were made to stay on activities accounting for the development of reading and writing skills. This finding aligns with the results of the study conducted by Akongoh (2021) and Zaviš and Diamantopoulos (2024). Their findings indicated that the number of teachers who were confident in testing their students' speaking skills was deficient and teachers often prefer to apply written forms of assessments in the class.

Responses from the teachers also indicated that teachers have low awareness of putting assessment components to achieve the purpose for which they were intended. The purpose of assessment through components of assessment was to measure competency at the end of the lesson. However, the practice of measuring competency was carried out at below average. Another purpose of the assessment practice was to use assessment as the achievement reports that identify student's proficiency levels on standards. It also practiced at below average. The other important purpose of assessment in the teaching of speaking in the context of CBLT was to enable students to see what good work looks like by assessing their work against the criteria. This purpose was also not achieved as the finding shows the result to be below average. This finding shows that the assessment did not serve the function of assessing speaking in the principle of assessment in the CBE model. The use of assessment practice does not fit the purpose intended in the CBLT context. Any of the purposes rated by the respondents indicate that respondents' experience of conducting assessment based on the purpose set in the principle of assessment in CBLT is below

average. The finding agrees with the conclusion made by Chien (2022), who stated that designing a lesson aligned with the aims, procedural steps, and assessment standards of an instructional program is challenging for, experienced and novice teachers in the competency model. According to McClarty and Gaertner (2015), the purpose of the competency-based assessment is to test learners' competencies and to test usage in realistic situations. So, competency assessment is conducted via performance tests for which the mastery of the specified competency is necessarily conditional. In this regard, teachers are required to have adequate awareness of the purpose of assessment and the procedure of administering it.

Results of the speaking test showed that the results of students in all four components of speaking skills are below the average. The test results of the fluency and vocabulary categories are a little better than pronunciation and grammar, however, both are far below the average. Therefore, the result indicates that students' competency level in speaking skills is low. The finding is in line with the study conducted by Lingga, Simanjuntak, and Sembiring (2020) and Tokunaga (2021) which participants of the study were tested for grammatical accuracy, use of vocabulary, and correctness of pronunciation of words in a Second Language context. The studies concluded that participants had difficulty in speaking English, namely lack of grammatical understanding, lack of vocabulary, and the incorrect pronunciation of words, and were neither accurate nor fluent.

The result showed that students demonstrated good performance in a few competencies identified. Speaking competencies under scrutiny in this study were greeting, self-introduction, talking about school, personal details with family, introducing others, asking and answering about everyday scenes, and describing household objects. These competencies are indicated in the Grade Four English syllabus. It is observed that learners fall short of the expected skill level when it comes to describing their school, providing personal information about their family, introducing themselves, inquiring and responding regarding everyday scenes, and describing household things. This concurs with other findings by Dağta and Cabaroğlu (2021). The results indicated that a great majority of the participants in their study lacked English speaking skills competency.

Candidates displayed low performance in producing sentences indicating mastery of the speaking competency. For example, the number of students who could produce expressions of greeting such as "I am fine, thank you..." is little. Some students struggled to greet in English. In the competency of self-introduction majority of the candidates were able to tell their names. The number of items used in the self-introduction was seven. However, most of the candidates used a few items in the self-introduction. It was noted that a lot of

students could understand a few expressions of self-introduction and a few expressions were elicited during the task. A large number of students were able to tell their names using the expression "My name is …" However, some students were struggling to introduce themselves using different possible items that can be produced in the context of specified competencies. For example, a lot of students used "My name is …" appropriately, but six other ways helpful items for self-introduction were used by a few students. Items like "I am a student.", "I am 10 years old." and other similar items were used by a small number of students. Items like "I am from Tinfa." and "I am a Grade 4 student.", "I like bananas.", "I like a potato.", and "I like English." and similar items, none of the students could produce them. Sentences like these were not found in the candidates' elicited production.

'Talking about the school' was the other competency to which a small number of candidates responded. A large number of students were not able to talk about their school. Quite a lot of activities were indicated practice in the student's textbook. However, in their test during the task, only a few students were accurate in describing their school. Quite a few students were able to produce expressions such as "My school name is..." and "It is big/small."

Talking about family is another competency data were collected. This competency equips learners with the skills learners need to give details about their families. The findings indicate that learners lack the skills required to talk about their families. They were exposed to different ways of expressing their opinion about their family during the test. However, they displayed poor command of the vocabulary and grammar essential for this purpose. As a result, a few students produced a sentence to describe and provide information about their families. Sentences useful in describing family such as "I have brothers & sisters.", "I have 2 brothers and 3 sisters.", "My brother is in grade 2.", and "My mother's name is Gadise.", which are useful in talking about family this level were not elicited.

The other competencies expected at this level were 'Introducing others', 'Asking and answering about everyday scenes', and 'Describing household objects'. The findings indicated that students were struggling to introduce their friends, talk about everyday scenes, and describe household objects. Learners could not answer questions related to these competencies and there was no competency demonstrated. The finding concurs with another study which uncovered the discrepancies in terms of students' mastery of skills and curriculum demand. Alata (2019) noted that students do not always demonstrate the intended competency and lack the knowledge, skills, values, and attitudes expected of them.

### 5 Limitations

Only four schools found in four districts were included in the sample as a source of data. It would have been more useful had additional sample schools been included. The number of sample schools was limited to four because the schools were geographically located in a widely dispersed area.

### Conclusions

The study aimed to address issues of implementation of CBLT assessment in English speaking skills. It focused on assessment components and awareness of what CBLT assessment does in speaking skills. It also aimed to measure speaking skills competency in Grade Four. The CBLT approach for competency assessment practiced fewer speaking skills assessment components. In the CBLT approach, speaking skills instruction only evaluates student competency to a limited extent. Teachers' awareness of the purpose of CBLT assessment in speaking instruction is below average. It was also discovered that learners performed below average in the competency identified for Grade Four students in speaking skills.

The current study has important implications for teaching practices. Firstly, assessment is a crucial component of the CBLT model, which involves the use of various methods to measure competency mastery. Unlike other approaches to ELT, assessment is not an optional part of the process, as students cannot move to the next level without demonstrating competency mastery. Therefore, the results offer insights into implementing CBLT assessments practically in spoken language instruction. Secondly, educational experts can gain insights into addressing the lack of awareness regarding the purpose of assessments in spoken language instruction. Thirdly, the findings can help practitioners and educational experts remain committed to promoting learners to the next level only after demonstrating mastery evaluated through the prescribed CBLT assessment.

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#### References

- Alata, E. J. P. (2019). Evaluation of outcomes-based private junior high school English curricula. *International Journal of Curriculum and Instruction*, 11(1), 43-64.
- Akongoh, R. N. (2021). Teacher-based assessment of speaking in Cameroonian secondary schools: The impact of teacher training. *Journal of English Language Teaching and Applied Linguistic*, 3(2), 1-11. https://doi.org/10.32996/jeltal.2021.3.2.1
- Allison, D. (1999). Language Testing and Evaluation: An Introductory Course. Singapore: Singapore University and World Scientific.
- Black, P. & William, D. (1998). Assessment and classroom learning. Assessment in Education, 5(1), 7-73. https://doi.org/10.1080/0969595980050102
- Chien, C-W. (2022). Undergraduate EFL majors' agency in ELT lesson designs. In A. Y. Wang (Ed.), Competency-Based Teacher Education for English as a Foreign Language (pp. 9-56). Routledge. https://doi.org/10.4324/9781003212805
- Creswell, (2012). Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative research (4<sup>th</sup> ed.). Boston, MA: Pearson Education, Inc.
- Dağtan, E., & Cabaroğlu, N. (2021). Status of English speaking skills in Turkish ELT departments: A nationwide survey. *Eurasian Journal of Applied Linguistics*, 7(1), 359-382. https://doi.org/10.32601/ejal.911454
- Goh, C. C. M., & Burns, A. (2012). Teaching Speaking: A Holistic Approach. Cambridge: Cambridge University Press.
- Griffith, W. I., & Lim, H.-Y. (2014). Introduction to Competency-Based Language Teaching. MEXROL Journal, 38(2), 1-9.
- Hanaysha, J.R., Shriedeh, F. B., & In'airat, M. (2023). Impact of classroom environment, teacher competency, information and communication technology resources, and university facilities on student engagement and academic performance. *International Journal of Information Management Data Insights*, 3(2), 1-12. https://doi.org/10.1016/j.jjimei.2023.100188
- Iwikotan, K. E. (2021). Testing in a competency-based language teaching context. *European Journal of English Language Teaching*, 6(6), 65-75. https://doi.org/10.46827/ejel.v6i6.3947
- Kouwenhoven, G. W. (2003). Designing for competence: towards a competence based curriculum for the faculty of education of the Eduardo Mondlane University. Enschede: Print Partners Ipskamp.
- Lingga, L. M., Simanjuntak, R. M., & Sembiring, Y. (2020). Students' strategies in learning speaking skills at SMP Nasrani 3 Medan. *JOLLT Journal of Languages* and Language Teaching, 8(1), 91-99. https://doi.org/10.33394/jollt.v8i1.2238
- Marks, I. (2014). Formative (Classroom) Assessment Techniques. Acta Technologica Dubnicae, 4(1), 46-50. https://doi.org/10.1515/atd-2015-0012
- McClarty, K. L., & Gaertner, M. N. (2015). *Measuring Mastery: Best Practices for* Assessment in Competency-Based Education. American Enterprise Institute
- Meskerem, L. D. (2017). Curriculum as unquestioned hegemony: Trends that reveal the exclusion of Ethiopian primary school curriculum content from researchers' critical look. *Bahir Dar Journal of Education*, 17(1), 14-33.

- Ministry of Education. (2009). Curriculum Framework for Ethiopian Education (KG Grade 12). Addis Ababa: Ministry of Education.
- Nation, I. S. P., & Newton, J. (2009). *Teaching ESL/EFL Listening and Speaking*. New York, NY: Routledge.
- Nunan, D. (2015). *Teaching English to Speakers of Other Languages: An Introduction*. New York: Routledge.
- Osman, T. (2018). Assessment of EFL speaking skills in Qatari public secondary schools: Teachers' practices and challenges [Unpublished MA Thesis]. Quatar: Qatar University.
- Özdil, S., & Duran, E. (2023). Development of persuasive speaking skills rubrics for primary school fourth grade students. *International Journal of Education & Literacy Studies*, 11(1), 59-67. www.ijels.aiac.org.au
- Richards, J. C., & Rodgers, T. S. (2014). *Approaches and Methods in Language Teaching* (3rd ed.). Cambridge: Cambridge University press.
- Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research Methods for Business Students* (7<sup>th</sup> ed.). Pearson Education Limited.
- Surkamp, C., & Viebrock, B. (Eds.). (2018). *Teaching English as a Foreign Language:* An Introduction. Stuttgart: Springer.
- Sutherland, D., & Strunk, K. O. (2021). Competency-Based Education in Michigan's 21j Pilot Districts: Case studies of implementation and innovation. Farm Lane: Education Policy Innovation Collaborative (EPIC).
- Tabe, N. A. (2019). Competency-based approach assessment strategies: Theory versus practice in Cameroon. *International Journal of Applied Research*, 5(4), 142-147.
- Thornbury, S. (2005). How to teach speaking. London: Longman.
- Tokunaga, M. (2021). Investigating fluency and accuracy of Japanese university EFL learners' spoken English Production. *Journal of English teaching*, 7(1), 163-178. https://doi.org/10.33541/jet.v7i2.2775
- Tulu, G., Tolosa, T., & J-F. (2018). The nature of classroom assessment in Ethiopian public secondary schools: Subject teachers' views. *Journal of Education, Society* and Behavioural Science, 26(3), 1-11. https://doi.org/10.9734/JESBS/2018/43233
- Wang, A. Y., & Maa, T-Y. (2022). Competency-based education: A literature review and its practical considerations for EFL teacher education. In A. Y. Wang (Ed.), *Competency-Based Teacher Education for English as a Foreign Language* (pp. 9-56). Routledge. https://doi.org/10.4324/9781003212805
- Wolf A. (1995). Competency-Based Assessment. Buckingham- Philadelphia: Open University Press.
- Zaviš, M., & Diamantopoulos, K. A. (2024). The Subjectivity of the grading evaluation system in the religious class in Greece - A new approach. Acta Educationis Generalis, 14(1), 94-108. https://doi.org/10.2478/atd-2024-0006

## Constraints, Contradictions and Challenges regarding Cooperation of Parents during COVID-19: A Social Capital Perspective

Tshegofatso Portia Motsumi - Shuti Steph Khumalo\*

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#### Abstract:

*Introduction:* When calamity hits humanity in the form of natural disasters, they appear unannounced. The same applies to the recent destructive and disruptive Covid-19 pandemic. During the early days of this pandemic, life activities were halted abruptly. Global education systems were not spared - most institutions were caught napping and forced to close. The educational development of children was adversely affected by the hard lockdown and stringent restrictions that followed the outbreak of the pandemic. The role that parents had to play in the education of their children needed to evolve to meet the new demands.

*Methods:* The researchers approached this study from a qualitative interpretivist philosophical stance to interview principals, teachers, and parents. In addition, this paper was located within Coleman's social capital theory.

**Results:** Amongst the key findings that emerged from the study were serious challenges regarding parents' cooperation during the Covid-19 pandemic, namely, communication challenges between the school and home, increased learner absenteeism, and failure by learners to do schoolwork. Finally, the study also found that some parents were disinterested and disengaged from the schools. This study is significant because it provides epistemological insights and understanding of the challenges schools experienced during the Covid-19 pandemic.

**Discussion:** Without exception, all participants felt strongly that the involvement of parents in a child's education during a pandemic such as Covid-19 is significant. According to Durisic and Bunijevac (2017), the more actively parents are involved in their children's learning, the more benefits are achieved. In contrast, there often seems to be little to no collaboration between the school and the home in ensuring that their common goal of seeing the child succeed is

<sup>&</sup>lt;sup>\*</sup> Tshegofatso Portia Motsumi, University of South Africa, Pretoria, South Africa; 61519588@mylife.unisa.ac.za

Shuti Steph Khumalo, University of South Africa, Pretoria, South Africa; ekhumass@unisa.ac.za

achieved. This is in harmony with the findings of Porumbu and Necsoi (2013) who intimate that, sometimes, parents may feel like they are doing everything to help their children, but due to lack of communication between the parents and the school, the school may feel as though involvement is lacking.

*Limitations:* The study was limited to only three schools and only nine participants were subjected to semi-structured interviews.

*Conclusions:* The study provided epistemological insights regarding the cooperation and involvement of parents during the trying circumstances of the Covid-19 pandemic. This study provided the findings which are critical for theory, practice and policy to the education systems regarding future disasters.

Key words: parental participation, involvement, social capital, Covid-19 pandemic, constraints.

#### Introduction

Jafarov (2015) argues that low student success and engagement and inadequate or non-existent parental participation are correlational. Parents play a significant role in their children's educational aspirations and accomplishments. The role parents play in the lives of their children cannot be overemphasised. The concept of parental involvement is multidimensional and cannot be confined to one definition. Although different scholars describe it differently, commonalities exist. It includes a legal guardian, such as an aunt, grandparent or a person who is lawfully accountable for the wellbeing of the child, that the child lives with (Goodall & Montgomery, 2014). Goodall and Montgomery (2014) and Ntekane (2018) describe parental involvement as the participation of parents in the upbringing and academic needs of their children. This includes significant communication about learners' academic progress and additional school activities. Moreover, parental involvement can occur more formally, such as when parents meet with teachers, or help their children with other activities, such as school projects. Regardless of the definition, parental involvement, especially during the Covid-19 pandemic, was necessary to ensure that the academic future of children was not compromised. Boonk, Gijselaers, Ritzen, and Brand-Gruwel (2018) are of the view that when parents assist their children at home, the results will be evident at school.

Covid-19 has greatly affected school functioning. Due to the Covid-19 pandemic, learners were initially unable to attend school. Later, when attendance resumed on proposed school days, social distancing in the classrooms and at school was the order of the day. Learners and teaching staff needed to wear masks and sanitise regularly (Goniewicz & Manesh, 2021). If a teacher or a learner tested positive for Covid-19, they needed to isolate for 14 days before returning to school (Department of Basic Education, 2020). This meant that if a

learner tested positive, they needed to stay at home until they were fully recovered. This had a negative impact on the education of learners. Parental involvement was of great importance during Covid-19, because when a learner missed school, the parent needed to communicate with the school, and ensure that any backlog was eradicated. Despite the challenges presented by the Covid-19 pandemic, learners could advance to the next grade with the support of parents who actively participated at school level and in educational activities at home, and with effective communication between the school and parents. Parental involvement was not only critical during the Covid-19 pandemic but also during normal, pandemic- and disruption-free periods (Munje & Mncube, 2018). It is evident that the school and parents needed to work together during that time of disaster for the benefit of the learners and their future. The purpose of this study was to examine the criticality of parental involvement during the Covid-19 pandemic outbreak in primary schools in Gauteng Province and the constraints and challenges during that period.

#### **1** Literature review

#### 1.1 Describing parental involvement

Studies have shown that parental involvement plays a vital role in a child's life. At school, it helps improve learners' performance and reduce the number of times the learner misses school (Castro & Gaviria, 2015; Garcia & Thornton, 2014; Magwa & Mugari, 2017). There is no single way of defining parental involvement: although not limited to, it includes parents coming into schools informally to bring their children lunch or to pay for a school trip, to more formal forms of involvement such as when parents attend school meetings and engage with their child's educator pertaining the academic progress of a pupil. The term "parent" includes a legal guardian such as an aunt, grandparent or a person who is legally accountable for the child's wellbeing and that the child lives with (Goodall & Montgomery, 2014). A parent includes a person who gave birth to that child or taking care of that child legally, or any other individual standing in loco parentis (stand in a place of a parent that has entrusted another person with the custody and wellbeing of their child). Goodall and Montgomery (2014) define parental involvement as the participation of parents in the upbringing and education of their children. This includes meaningful communication involving learners' academic learning and other school activities (Boonk, Gijselaers, & Ritzen, 2018). No matter the definition, parental involvement, especially during a pandemic, can build and mould the future of the child and result in school improvement. Parental involvement in a pupil's education at home is self-evident in the pupil's behaviour at school.

Maluleka (2014) highlights the importance of parental involvement by maintaining that when parents are involved in their children's educational

activities, and when parents work well with teachers by supporting each other, a common goal is achieved; effective learning and teaching, which results in higher academic performance. Kurtulmus (2016) views parental involvement as the parent's engagement in the child's educational development in both the sphere of the home and school. As a result of this, it is imperative that the parent ensures that the child is at school, on time, in appropriate apparel and has all the materials needed for learning. At home, parents should ensure that the child completes the tasks and projects given to them at school.

According to Ireland (2017), it is not easy for parents to be fully involved if the school does not have appropriate strategies to engage them in the education of their children. However, that does not shift the burden of responsibility that each parent has towards the education of his/her child. Ireland (2017) maintains that despite the challenges posed by a pandemic, such as Covid-19, the onus is on the parents to ensure that the education of their children remains of utmost importance. Schools have a code of conduct; it is the duty of both the parent and the school to ensure that the child always abides by it.

For this study, parental involvement is defined as the consistent engagement and participation of parents in a child's schooling, keeping communication lines with the school open regarding the child's academic learning and other school extramural activities (Ntekane, 2018). A child's academic success is closely tied to the parent's perception of education and the extent to which a parent is involved. Ndlovu, Schlebusch and Makola (2023) posit that lack of stakeholder engagement contributes towards learner indiscipline. Such involvement and support go beyond helping the child at school by giving them confidence to confront the outside world. A study by Kwatubana and Makhalemele (2015) found that parental involvement is especially important during the early stages of a child's development. They argued that children whose parents were involved in their education from the outset displayed a higher level of academic aspirations compared to their peers. In addition, they also held the view that such involvement equipped the child with the psychological tools required to flourish in the world outside the school.

# 1.2 Reflections on Covid-19 pandemic and its ramifications on the education system

Coronavirus disease is an infectious disease that first appeared in 2019 in Wuhan, China. It was later classified as Covid-19 by the World Health Organisation (WHO), which stands for Coronavirus Disease 2019. The coronavirus epidemic is considered one of the worst global pandemics in decades (Onyema, Obafemi, Sen, & Sharma, 2020). It is a highly contagious and infectious virus-related infection that causes severe respiratory symptoms. Patients show various symptoms that resemble the influenza virus. Those

symptoms include fever, tiredness, coughing, sore throat, difficulty breathing, loss of appetite, and blocked nose (Hafeez, Ahmad, Siddqui, Ahmad, & Mishra, 2020). The recommended measures to prevent the spread of Covid-19 pandemic include wearing of a face mask, regularly washing of hands with soap, avoiding touching of your face, maintaining a one-metre distance from people and self-isolation of 14 days for people who are infected (Hafeez et al., 2020). Clearly, these measures, as well as other restrictions imposed by the authorities, affected the education system globally, and South Africa included.

Covid-19 was declared a pandemic because it was an epidemic of an infectious disease that spread across a large region, worldwide, affecting large numbers of people. Many factors influence how far a condition spreads: two of the most important factors are how easily the condition is transmitted from one person to the next and the movement of people (Grennan, 2019). According to research done by Vasireddy, Vanaparthy, Mohan, Malayala and Atluri (2021), the Covid-19 virus has multiple variants. This is because viruses regularly change through mutation and in many cases this mutation results in new strands of the virus (United Nations, 2022). The Covid-19 pandemic has greatly hindered the school's ability to carry out its functions.

In South Africa, all the schools were closed during the hard lockdown to control the spread of the virus and protect civilians. Valuable teaching-learning time was lost, and the curriculum had to be trimmed to compensate for the lost time. Most public schools could not swiftly switch to e-learning due to the lack of resources, which meant that it became the parents' responsibility to ensure that their children continued learning from home (Mhlanga & Moloi, 2020). For many parents, this was an impossible task because studies have shown that parental involvement has been a challenge in many schools even prior to the pandemic (Munje & Mncube, 2018). A study conducted by Almaiah, Al-Khasawneh and Althunibat (2020) found that when schooling resumed after June 2020 in Saudi Arabia, there was a clear gap between children who had been supported at home to continue learning and those who had not been. Similar findings were recorded in South Africa.

Wills, Kotze and Kika-Mistry (2020) emphasise that when learners returned to school, it took a long time for things to return to normal. Parker, Morris and Hofmeyr (2020) maintain that learners in South Africa had to return to school in stages; for instance, Grades 7 and 12 were the first grades to return to school after lockdown. Teachers had to use catch-up methods to help learners with the curriculum, and in some subjects the curriculum was revised, meaning some topics were omitted or trimmed to allow for coverage (Hoadley, 2020). Parker et al. (2020) posit that since learners had spent more than two months at home, most did not engage in any form of formal education; therefore, when formal schooling resumed, many learners - especially in primary schools - had forgotten

to read even simple sentences. According to Xiang, Zhang and Kuwahara (2020), at the onset of school resumption, learner attendance was very poor, and learners struggled to adjust to the new normal, resulting in poor academic performance.

# 1.3 Parental cooperation and involvement during Covid-19 from an international perspective

The whole world was affected by Covid-19 (Onyema et al., 2020). According to UNICEF (2021), in March 2020 schools were closed and more than 168 million children globally were affected. The report further states that from March 2020 to February 2021, 14 countries kept schools closed. The countries that kept schools closed for the longest time included Panama, Bangladesh, and Philippines (Jain & Singh, 2020). Panama experienced great devastation during Covid-19, and had more Covid-19 cases than other countries in Central America (Jain & Singh, 2020). On 15 March 2020, Panama went under lockdown whereby schools and other establishments, except pharmacies and supermarkets, had to close. Schools stayed closed for 18 months (Loaiza, Rao, Eskildsen, Ortega-Barria, Miller, & Rolando, 2020). As the country went under lockdown, parents had to play their part in educating their children.

Closure of schools caused learners to be left behind academically, which caused an educational crisis as learners without technological resources could not study from home. According to the parental involvement policy of Panama public schools report (2021), few parents fulfilled their duty of being involved during the closure of schools due to the surge of Covid-19 cases (Jaramillo, 2020). This highlights that parental involvement during Covid-19 was a problem in Panama, as was the case in South Africa.

Bangladesh and Philippines were also greatly affected by the Covid-19 pandemic. Schools in these countries were closed from mid-March 2020 to September 12, 2021 (Jain & Singh, 2020; Al-Zamah, 2020). This meant valuable teaching time was lost. During the difficult times, distance learning was highly recommended (Islam, Talukdar, Siddiqui, & Islam, 2020), but a study by UNICEF (2021) highlights that many children could not be reached by the teachers for online learning - only one out of three children was reached through distance learning, and only a quarter could actively participate academically. These numbers suggest that during school closure caused by Covid-19 there was little evidence of parental involvement in Bangladesh and the Philippines. Similarly, South African learners from disadvantaged areas could not be reached for online classes, resulting in their falling behind peers from more affluent communities.

#### 1.4 Social capital as underpinning theory of the study

To ascertain the significance of parental involvement, this study draws from James Coleman's social capital theory. In 1988, Coleman developed this theory in which he refers to all social resources in their various forms which are available to children to aid them in their educational growth as social capital (Bhandari & Yasunobu, 2009). These resources include a stable family environment which is essential if a child is to receive full educational support. He also distinguished between different social capital provided by the home and school. One category of inputs, which include opportunities, demands and rewards, comes from schools, whilst the second category of inputs, which include attitudes, effort and conception of self, is instilled by the social environment of the home (Durisic & Bunijevac, 2017). The theory acknowledges that it is not solely the parents' responsibility to engage with the school, as the school also needs to play a role in creating the conditions for involvement. This theory encourages good parenting, whereby parents first need to create a good and a safe environment for their children, an environment which promotes educational goals. In this way, children can see the importance of education. Communication between the school and home is essential if proper parental involvement is to be achieved. The burden of responsibility rests heavily on the schools, who must ensure that the parents are kept informed of their children's progress. Similarly, responsible parents ensure that the school knows of any home situations which have a direct influence on the child's learning abilities (Epstein, Sanders, Simon, Salinas, Jansorn, & Corwin, 2002). In this way, the sphere of the home and school overlaps. This argument is significant to this study as it details what it means for parents to be involved. During the Covid-19 pandemic, schools greatly needed the support provided by parents. In schools and communities where sufficient involvement channels were already available, the challenges of learning from home were minimal.

#### 2 Research methodology

This research report was qualitative in nature. Hackley (2020) describes the qualitative research approach as organised study into social phenomena in natural conditions. The research method provided insights into the problem under investigation and helped to develop ideas for potential research (Roller & Lavrakas, 2015). The use of this approach assisted us to understand the social situation from participants' perspectives. Further, Saldana (2011) is of the view that this methodology allows flexible, changing strategies and design during data collection. The philosophical stance we adopted was of an interpretivist nature. This was in line with the views of Kaushik and Walsh (2019), who maintain that good research stands on a wisely selected philosophical stance which helps to direct and shape the investigation. This paradigm assisted in understanding and

explaining the experiences of participants from their natural settings (Wilcocks, Sauer, & Lacity, 2016). The rationale for this selection is echoed by Davis, Low, Allen and Sharma (2021) in that the interpretive paradigm studies the behaviour of people based on their beliefs, knowledge, and experiences.

The researchers interviewed three principals (principal A, B and C), three teachers (teacher A, teacher B and teacher C) and three parents (parent A, parent B, parent C) who were purposively selected. These participants were selected from three different schools, three from each school (principal, teacher, and parent). The criteria were based on the views of Emmel (2013) since the selected participants were knowledgeable about the subject under investigation. Additional selection criteria included gender mix (male and female participants), experience in the position (not less than three years for principals and teachers). The researchers conducted semi-structured interviews for the simple reason, as argued by Galleta and Cross (2013), that semi-structured interviews are best suited for the study of people's opinions regarding sensitive information, and they allow the researcher to probe for more information and clarity.

#### 3 Collation, presentation, and analysis of results

As earlier indicated, the purpose of this study was to a) determine the criticality of parental cooperation and involvement during the pandemic, and b) examine the constraints, contradictions, and challenges during Covid-19 pandemic. Themes emerged because of the process of rigorous analysis and synthesis which were presented thematically as follows.

3.1 Contextual comprehension of the perception of the concept 'parental involvement'

The participants held varying beliefs regarding what effective parental involvement entails. From their responses, it was clear that an individual's understanding of the concept is closely linked to his or her attitude towards involvement. Several views were presented by the participants to conceptualise effective parental involvement. Below follows the views of participants on their understanding of parental involvement:

Teacher A said: "Parental involvement is whereby educator and parents work together regarding the learners...because as educators we can't be successful doing things alone, we need parents to work with us. So that when we give them homeworks they can help. And support the children because the learners also need support at home."

As expressed, this limits parental involvement to interactions between the teacher, the parent, and the learner. However, it acknowledges that the success of the school is closely intertwined with the intervention of the home (Maluleke, 2014). Contrary to this, other participants felt that parental involvement includes

a wider range of activities and interactions. Parent A shared similar sentiments, detailing various activities which she felt the parent should do for the learner to succeed in school. These include activities that do not necessarily have a direct link to schooling but involve the general wellbeing of the child. She remarked that: "In an education sector, I think parental involvement entail uhmm... helping my children with schoolwork and...and ensuring that they go to school. So, it starts from the beginning when I have to prepare them for... for school, making sure that their school clothes are clean and then they have written all their schoolwork, did their assignments, projects and studied for tests. So, in a nutshell helping them with their schoolwork and making sure that they do go to school and giving them everything to make sure that they pay attention at school... like lunch box, or giving them pocket money, so that they can... their education can be a success."

The views expressed link the home and school environment as overlapping spheres that are both essential in ensuring the child's success. Epstein's theory of overlapping spheres recognises that although some practices of families and schools are conducted independently, others reflect shared responsibilities of parents and teachers (Epstein, 1995). Central to this, is the child being able to reach their full potential owing to the parents' participation. The views expressed by the participants regarding their conceptual understanding of involvement are in line with Goodall and Montgomery (2014), who define 'parental involvement' as the participation of parents in the upbringing and education of their children. This includes meaningful communication involving learners' academic learning and other school activities.

A common emerging conceptual understanding of involvement from the participants' responses is that involvement is limited to certain specific activities that they believe an involved parent ought to part take in.

#### 3.2 Challenges of parental involvement

The researchers found that parents experienced similar challenges, though often in different contexts. It was clear that the underlying issues leading to the challenges were often shared amongst the participants. Under this theme, the following sub-themes emerged, namely communication chaos, learner absenteeism and failure to do schoolwork and disinterested and detached parents.

#### 3.3 Disorganised communication

Parent A recalls his experience during the period of staggered attendance and expressed his frustrations as follows: "The problem was with the rotational attendance... yooooh it was very hard, because sometimes you would find that there are holidays in between, and the school did not count them, and when the children go to school, they would call me to fetch my children because they went

on wrong days. Sometimes, learners would not go to school, only to find out that they missed their days. It was complicated. What really helped me is that I would go to school and ask."

It is interesting to note that parent A1 felt frustrated by the whole ordeal, despite going to the school to find out when his child was expected to attend. It is worth asking whether schools used all resources at their disposal to ensure that parents stay abreast of any developments or changes in the attendance of learners. Parent C's view is that a communication breakdown between the school and parents led to confusion. She points out: *"There was lack of communication during hard lockdown between the school and parents... In most cases, children would be confused about their attending days, because the school would not update their timetables, sometimes there would be clashes."* 

Parent C highlighted the lack of communication from the school as a challenge that led to confusion when it came to understanding learners' timetables. He said: "Attendance schedules were very hard to understand. Because the school would change them without informing us." Parent B highlights the same challenge that "Sometimes SMSs would be sent late, so it would make it hard to understand the days when my child has to attend, because the SMS was confusing."

From the parents' challenges, we gather that the biggest challenge was lack of communication between the school and the parents. According to Genç (2017), communication between parents and the school plays a vital role in ensuring good parental involvement at schools. Most parents referring to confusion regarding timetable indicates that the schools did not ensure that the messages reach parents on time. From parents' responses, the researchers concluded a lack of communication, for instance, Parent C mentioned lack of communication and Parent B mentioned that "Sometimes SMSs would be sent late..." This shows that the schools should work hard in finding better ways to communicate with parents and ensuring that the tools they use to communicate with parents deliver their message instantly.

#### 3.4 Learner absenteeism and failure to do schoolwork

Teachers also had their challenges. Most teachers highlighted that the biggest challenge was absenteeism and learners not doing their schoolwork.

Teacher A expressed her frustrations by mentioning the following challenges: "Uhmmm... Most learners were not doing their homework, even when we wrote letters to parents, they were not responding... they would not assist. At some point, the value of work in the classroom was low... it would take time due to lack of parental involvement at home...Learners did not attend in full capacity. Most learners were always absent. Some parents were not even aware of which days their children must attend, when you call them, they would say they are not

aware. The learners would still come to school with undone work, without any remorse."

Teacher B shares the same sentiments, especially by emphasising that learners were not assisted at home with schoolwork. "I would say learners were less assisted at home, because you would find that the learners miss their days, and most did not complete their homework... they were lot of dropouts, since learners attended for few days. As a result, the pass percentage dropped, and more learners failed during COVID-19."

Teachers expressed these challenges which could have been avoided with positive parental involvement. For instance, challenge one, which is high absenteeism, could have been avoided if the school and parents had good communication methods. Allen, Diamond-Myrsten and Rollins (2018) point out that school absenteeism has a prolonged negative effect on the learners as it can lead to a high number of learners dropping out of school. It is therefore crucial for parents to participate in their children's education.

#### 3.5 Disinterested and detached parents

Principal A showed lack of response from parents as the biggest challenge they face. He said: "As you can see the community here, most of these parents are not educated themselves, you can see we have squatter camps, so the parents, most of them they don't care. We call meetings, they don't come. We call them when the learners have been ill discipline, they don't come, so we try to communicate with parents, but often we don't get any response. Sometimes the learner is here Grade 1 to 7 without seeing the parent, throughout the schooling. So, we don't know... it's hard, it is very tough, you see at this school we have the community Facebook page, we post things there, we have a school Facebook page we use to post things also there. We have a WhatsApp group that has all parents' numbers, but they keep changing numbers. Now this one is using this number and the next day they change numbers... we can't get hold of them, but we... we use those WhatsApp groups, we call. We try to get their information using reports cards, but still they don't come to school or send that information."

Principal A showed that the school used different methods to communicate with parents, but most parents still did not respond to those different methods, which is very concerning.

Principal B also shared his challenges by mentioning that: "During Staggered attendance... parents were not helping much. We encouraged parents to come collect their child's home works, but most never came. They did not care. We tried our best...some parents kept their children at home, some never came to school to collect homework. What we are facing right now... learners have huge gaps. Some learners fail normal things that they would pass if their parents were more involved."

Principal B's views demonstrate that if parents had been more involved, especially during staggered attendance, the school would have positive results and a good pass percentage. According to Ntekane (2018), when there is a lack of parental involvement, learner absenteeism increases and pass percentage drops.

The biggest challenges we noticed as researchers is the non-responsiveness of parents when the schools communicate with them. Our observations during the study showed that schools have adopted modern ways to communicate with parents, like using SMSs and calls. The biggest problem in this regard is that parents change numbers without updating the schools; in which case it becomes hard for the school to reach parents. Another challenge was that most parents do not attend parents' meetings, which is where most important information is shared. Jafarov (2015) concurs that parents' attendance of school meetings and other school activities encourages the child to excel and make their parents proud. James Coleman's social capital theory developed in 1988 refers to all social resources in their various forms which are available to children to aid them in their educational growth as social capital (Bhandari & Yasunobu, 2009). These resources include a stable family environment which is essential if a child is to receive full educational support.

Without exception, the participants felt strongly that the involvement of parents in a child's education during a pandemic such as Covid-19 is significant. Durisic and Bunijevac (2017) posit that the more actively parents are involved in their children's learning, the more benefits are achieved. There seems to be little to no collaboration between the school and the home in ensuring that their common goal of seeing the child succeed is achieved. This concurs with the findings of Porumbu and Necsoi (2013) who intimate that, often, parents may believe that they are doing everything to help their children, but due to a lack of communication between the parents and the school, the school may experience that involvement is lacking. Genç (2017) highlights the importance of communication by pointing out that communication between parents and the school plays a vital role in ensuring good parental involvement at schools. This study found that parents were often left confused by the rotational timetable that was adopted during the Covid-19 pandemic and lockdown period.

#### Conclusions

As stated earlier, the recent Covid-19 pandemic wreaked havoc with the schooling system. Globally, education authorities were not prepared for the repercussions of the pandemic in 2020. The purpose of this inquiry was first to explore whether parents cooperated with schools and, second, to examine the constraints, contradictions, and challenges during the Covid-19 pandemic. In its examination, the researchers deployed a qualitative research approach and, in

addition, the study was anchored in an interpretivist philosophical stance. The interpretivist nature of the study enabled the researchers to collect data from the natural settings of the principals, teachers, and parents. The views of participants corroborated what scholarly literature concluded on the involvement of parents, particularly during the pandemic times. Amongst the key findings emerging from the study were serious challenges regarding parents' cooperation during Covid, which include communication between the school and home, increased learner absenteeism, and failure by learners to do schoolwork. Finally, the study also found that some parents were disinterested and disengaged from the schools. This study is significant because it provides epistemological insights and understanding of the challenges schools experienced during Covid-19.

#### References

- Allen, C. W., Diamond-Myrsten, S., & Rollins, L. K. (2018). School absenteeism in children and adolescents. *American family physician*, 98(12), 738-744.
- Al-Zaman, S. (2020). Healthcare crisis in Bangladesh during the COVID-19 Pandemic. The American Journal of Tropical Medicine and Hygiene, 103(4), 1357.
- Bhandari, H., & Yasunobu, K. (2009). What is social capital? A comprehensive review of the concept. Asian Journal of Social Science, 37(3), 480-510.
- Boonk, L., Gijselaers, H. J. M., Ritzen, H., & Brand-Gruwel, S. (2018). A review of the relationship between parental involvement indicators and academic achievement. *Educational Research Review*, 24, 10-30. http://dx.doi.org/10.1016/j.edurev.2018. 02.001
- Castro, M., & Gaviria, J. L. (2015). Parental involvement on student academic achievement: A meta-analysis. *Educational Research Review*, 14(1), 33-46.
- Davis, P., Low, M., Allen, J., & Sharma, U. (2021). Intellectual capital and pictorial disclosures analysis: An MIA interpretative paradigm. In *Business 2021* (pp. 195-218). https://doi.org/10.4337/9781785365324.00018
- Department of Basic Education. (2020). Standard Operating Procedures for Teachers, Non-Teaching Staff and Learners on the Coronavirus or COVID-19 Outbreak in South Africa. Pretoria: Government printer.
- Durisic, M., & Bunijevac, M. (2017). Parental involvement as an important factor for successful education. CEPS Journal, 7(3), 137-150.
- Emmel, N. (2013). Sampling and Choosing Cases in Qualitative Research. Thousand Oaks: SAGE.
- Epstein, J. L., Sanders, M. G., Simon, B. S., Salinas, N. R., Jansorn, N. R., & Corwin, F. L. (2002). School, Family, and Community Partnerships: Your handbook for action. Thousand Oaks: CA.
- Galletta, A., & Cross, W. E. (2013). *Mastering the Semi-Structured Interview and Beyond*. New York: University Press.

- Garcia, L. E., & Thornton, O. (2014). The Enduring Importance of Parental Involvement. Retrieved from http://Neotoday.org/2014/11/18/the-enduring importance of parental involvement-2
- Genç, R. (2017). The importance of communication in sustainability & sustainable strategies. *Procedia Manufacturing*, 8, 511-516.
- Goniewicz, K., & Manesh, A. K. (2021). Maintaining social distancing during the COVID-19 outbreak. *Social Sciences*, *10*(14), 2-7.
- Goodall, J., & Montgomery, C. (2014). Parental involvement to parental engagement: A continuum. *Educational Review*, 66(4), 399-410.
- Grennan, D. (2019). What is a pandemic? JAMA, 9(2), 332.
- Hafeez, A., Ahmad, S., Siddqui, S. A., Ahmad, M., & Mishra, S. (2020). A review of COVID-19 (Coronavirus Disease-2019) diagnosis, treatments and prevention. *Ejmo*, 4(2), 116-125.
- Hackley, C. (2020). *Qualitative Research in Marketing and Management: Doing Interpretative Research* (2nd edition). London: Routledge.
- Hoadley, U. (2020). Schools in the Time of COVID-19: Impact of the Pandemic on Curriculum. Stellenbosch: Stellenbosch University.
- Ireland, K. (2014). The definition of parent involvement. *Erişim*. Retrieved from http://www.livestrong.com/article/75306 definition-parent-involvement
- Islam, M. T., Talukdar, A. K., Siddiqui, N., & Islam, T. (2020). Tackling the COVID-19 pandemic: The Bangladesh perspective. *Journal of Public Health Research*, 9(4), 389-397.
- Jafarov, J. (2015). Factors affecting parental involvement in education: The analysis of literature. *Khazar Journal of Humanities and Social Sciences*, 18(4), 35-44.
- Jain, V., & Singh, L. (2020). Global spread and socio-economic determinants of Covid-19 pandemic. Social Journal of Economics, 33(4), 562-600.
- Jaramillo, S. G. (2020). COVID-19 and primary and secondary education: The impact of the crisis and public policy implications for Latin America and the Caribbean. New York: USA.
- Kaushik, V., & Walsh, C. A. (2019). Pragmatism as a research paradigm and its implications for social work research. *Social Sciences*, 8(9), 1-17.
- Kurtulmus, Z. (2016). Analyzing parental involvement dimensions in early childhood education. *Educational Research and Reviews*, 11(12), 1149-1153.
- Kwatubana, S., & Makhalemele, T. (2015). Parental involvement in the process of implementation of the national school nutrition programme in public schools. *International Journal of Educational Sciences*, 9(3), 315-323.
- Loaiza, J. R., Rao, K., Eskildsen, G. A., Ortega-Barria, E., Miller, M. J., & Rolando, A. (2020). Covid-19 pandemic in Panama: Lessons of the unique risks and research opportunities for Latin America. *SciELO Public Health*, 1(86), 1-5.
- Magwa, S., & Mugari, S. (2017). Factors affecting parental involvement in the schooling of children. *International Journal of Academic Research and Reflection*, 5(1), 74-79.
- Maluleke, S. G. (2014). Parental Involvement in Their Children's Education in the Vhembe District: Limpopo. Pretoria: UNISA.

- Mhlanga, D., & Moloi, T. (2020). COVID-19 and the Digital Transformation of Education: What Are We Learning on 4IR in South Africa. Johannesburg: University of Johannesburg.
- Munje, P. N., & Mncube, V. (2018). The lack of parental involvement as hindrance in selected public primary schools in South Africa. *The voices of educators*, 36(1), 80-88.
- Ndlovu, M., Schlebusch, G., & Makola, S. (2023). A framework for implementing positive learner discipline in public secondary schools from the context of the Mpumalanga Province. Acta Educationis Generalis, 13(3), 115-148. https://doi.org/10.2478/atd-2023-0025
- Ntekane, A. (2018). Parental Involvement in Education. Vaal: Northwest University.
- Onyema, E. M., Obafemi, F., Sen, S., & Sharma, A. (2020). Impact of coronavirus pandemic on education. *Journal of Education and Practice*, *11*(13), 108-118.
- Parker, R., Morris, K., & Hofmeyr, J. (2020). Education, inequality and innovation in the time of COVID-19. *JET Education Services*. Retrieved from https://www.jet.org.za/ resources/theme-9-final-july-2020-parker-et-al.pdf
- Porumbu, D., & Necsoi, D. V. (2013). Relationship between parental involvement/attitude and children's school achievements. *Procedia- Social and Behavioural Sciences*, 76, 706-710.
- Roller, M. R. & Lavrakas, P. J. (2015). *Applied Qualitative Research Design: A total Quality Framework Approach*. New York: The Guilford Press.
- Saldana, J. (2011). Fundamentals of Qualitative Research: Understanding Qualitative Research. New York: Oxford University Press.
- Unicef. (2021). Special COVID-19 Edition: UNICEF Child Protection Update. Retrieved from https://www.unicef.org/documents/special-covid-19-edition-unicef-childprotection-update
- United Nations. (2022). *Policy Brief: Education during COVID-19 and Beyond*. Retrieved from https://www.un.org/development/desa/dspd/wp-
- Vasireddy, D., Vanaparthy, R., Mohan, G., Malayala, S. V., & Atluri, P. (2021). Review of COVID-19 variants and COVID-19 vaccine efficacy: What the clinician should know. *Journal of Clinical Medicine Research*, 13(6), 317.
- Willcocks, L. P., Sauer, C., & Lacity, M. C. (2016). Enacting Research Methods in Information Systems: Volume 2. Palgrave: Macmillan Cham.
- Wills, G., Kotze, J., & Kika-Mistry, J. (2020). A Sector Hanging in the Balance: Early Childhood Development and Lockdown in South Africa. Oxford: University of Oxford.
- Xiang, M., Zhang, Z., & Kuwahara, K. (2020). Impact of COVID-19 pandemic on children and adolescents' lifestyle behaviour larger than expected. *Progress in cardiovascular diseases*, 63(4), 531-532.

# Development of a Teacher Rating Scale for Giftedness (TRSG)

Şeyda Aydın-Karaca - Şule Kılınç\*

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#### Abstract:

*Introduction:* Intellectual giftedness is an important student characteristic that teachers need to take into consideration when designing education programs and providing educational support to these students. Effective nomination and identification are the basis for further education. In nominating gifted students for special educational programs, teachers play an important role by providing information about superior characteristics of students. The purpose of this study is to develop a teacher rating scale (TRSG) for nominating the children to gifted education programs.

**Methods:** In order to develop a teacher rating scale (TRSG) for nominating the children to gifted education programs, the present study involved three stages: item generation, instrument application and validity-reliability analyses. One hundred sixty-nine teachers participated in the study. To ensure the validity of the scale, its content, construct and criterion-related validity were examined, and to ensure its reliability, its Cronbach alpha value was calculated. For content validity, three experts on gifted education examined the items and the whole scale in terms of successful intelligence theory. After their approval of the content, construct validity was examined by confirmatory factor analysis.

**Results:** The result of the analysis supported the three-factor structure of the scale having 17 items. According to the results of the research, it has been established that the TRSG is a valid and reliable instrument, and it may be used to nominate gifted children based on the evaluations of the teachers.

**Discussion:** Sternberg (2018) defined three components. According to the theory of Sternberg (2018), giftedness involves analytical, practical and creative intelligences, and they are associated not only with each other but also with a G factor. In the analysis, each item was classified under a component of successful

<sup>&</sup>lt;sup>\*</sup> Şeyda Aydın-Karaca, Hacettepe University, Department of Special Education, Ankara, Turkey; seyda.aydin@hacettepe.edu.tr

Şule Kılınç, Hacettepe University, Department of Special Education, Ankara, Turkey; sule\_kilinc@hacettepe.edu.tr
intelligence theory and the statistical examinations supported the anticipated associations among the items and the factors.

*Limitations:* The sample size of the teachers was small. The limitations of this study are the use of convenience sampling and the inclusion of only 169 teachers in the sample. Another limitation is rating bias.

*Conclusions:* The results on the validity and reliability supported the notion that the scale is appropriate to be used for nomination purposes by teachers in gifted education programs. Its limited number of items, quick application, and simple scoring procedures make it advantageous for use in various contexts.

**Key words:** gifted children, nomination, successful intelligence, teacher rating scale, validity, reliability.

### Introduction

Intellectual giftedness is an important student characteristic that teachers need to take into consideration when designing education programs and providing educational support to these students. Sternberg defined giftedness as the use of creative thinking, analytical thinking, practical thinking and wisdom-based skills for changing the world for the better (Sternberg, 2020). Effective nomination and identification are the basis for further education. Machu and Lukeš (2019) state that teachers are one of the three most important external factors in the identification of giftedness. In nominating gifted students for special educational programs, teachers play an important role by providing information about superior characteristics of students. Moreover, the support of teachers in the nomination stage is fundamental for further identification (Biber et al., 2021). Westberg (2012) explained the importance of teacher nomination when other tools of identification are not satisfactory. Westberg revealed that only using standardized tests in identification might result in wrong decisions; similarly, using multiple criteria in nomination is needed to avoid wrong decisions on gifted students. Pfeiffer and Petscher (2008) highlighted the importance of scientifically sound and standard complementary instruments of IQ tests in the evaluation of gifted children. Teacher rating scales are particularly beneficial in nomination and identification. According to Pfeiffer and Jarosewich (2003), teacher rating scales do not require extensive teacher training and are userfriendly.

There are different teacher rating scales in the related literature (Gentry, Pereira, Peters, McIntosh, & Fugate, 2021; Gilliam, Carpenter, & Christensen, 1996; McCarney & Anderson, 1998; Pfeiffer & Jarosewich, 2003; Renzulli et al., 2002; Ryser & McConnell, 2004). Pfeiffer and Jarosewich (2003) developed GRS-S (Gifted Rating Scale-School Form) in 2003. Then, Petscher and Pfeiffer (2020) investigated the validity and reliability of the GRS-S by using more

comprehensive analysis techniques in 2020. Their findings revealed that the scores given by teachers were valid and reliable. Gentry et al. (2021) also reported strong validity and reliability of scores of the teacher rating scale developed by them. Ryser and McConnell (2004) developed Scales for Identifying Gifted Students to assist teachers and schools in their decisions on gifted students. They reported acceptable levels of concurrent validity and construct validity and high level of reliability for the scores given by teachers using the scales. Renzulli et al. (2002) validated Scales for Rating the Behavioral Characteristics of Superior Student, and strong alpha reliability coefficients (ranging from 0.84 to 0.97), strong criterion-related validity and acceptable contruct validity were reported by the authors.

The above-mentioned teacher rating scales had different theoretical foundations; however, giftedness needs to be defined in line with the needs of the society and an appropriate theoretical basis needs to be established by taking into consideration the views of the society and those reported in the literature on giftedness. Then comprehensive and detailed evidence for validation and reliability should be collected. Hence, the main purpose of this study was to develop a teacher rating scale that could appropriately nominate gifted children.

### **1** Theoretical framework of the study

Teachers have an important role in nominating gifted students to special programs on grounds that teachers of gifted students regularly observe, compare, record and evaluate performances of gifted students in classrooms. They provide rich and detailed information about gifted students, and they give direction to further identification processes by making holistic evaluations about the performances of gifted students. Moreover, information provided by teachers about gifted students is influential in educators' decisions in program development. Having a clearly framed scale for observing behaviours of gifted students, teachers can provide information in a more systematic way. The triarchic theory of successful intelligence, which is based on a simple but solid and comprehensive model, lists and classifies the behaviours of the gifted (Sternberg, 2018). According to Sternberg (2018), the triarchic theory of successful intelligence consists of the ability to use different sets of skills for adapting to, shaping or selecting an environment to be successful in life within a certain socio-cultural context. The theory includes three sets of skills: analytical, creative and practical (Sternberg, 1999). The first set involves five different analytical skills: Analyzing, evaluating, critiquing, comparing and contrasting things. The second set involves creative abilities associated with six different behaviours: Creating, exploring, discovering, inventing, imagining and supposing. The third set involves practical abilities associated with four behaviours: Applying, using, implementing and putting into practice (Sternberg,

1999). In Figure 1, the interaction of the three different sets of behaviours is represented. In the present study, the extended version of the model was chosen in order to consider the G factor explaining the other sets of skills not associated with the three components. G factor was added to the model since recent factor analytic evidence support the notion of the G factor (e.g. CHC theory, Schneider & McGrew, 2022).



Figure 1. Extended components of the triarchic theory of successful intelligence.

The theory is comprehensive and simple; moreover, it was found effective in empirical studies on evaluation of gifted students (Nguyen, Nguyen, Dang, & Duong, 2022; Sabbah & Aldin, 2022). Some of the researchers used the theory to develop and implement successful educational programs (Sternberg, Torff, & Grigorenko, 1998; Sternberg, 2002, 2018). The extended model regarding the theory was preferred in this study because it also provided a balance between g-focused theorists and separate-abilities theorists (Sternberg, 1999). By doing so, it became possible to gain an advantage in evaluating both domain-free and domain-related behaviors of gifted children. In summary, the theory, supported by strong empirical evidence, offers a robust explanatory framework and strikes a balance between theories that focus on G and specific behaviors. Thus, considering these characteristics, the researchers based the development of the targeted instrument on this theory. The behaviors of gifted students were classified into three different components of the theory, and the items of the scale were developed based on this classification.

### 2 Methodology

In order to develop a teacher rating scale (TRSG) for nominating the children to gifted education programs, the present study involved three stages: item generation, instrument application and validity-reliability analyses. In the item generation stage, the existing literature was reviewed (Alma, 2015; Pfeiffer, Petscher, & Kumtepe, 2008; Jarosewich, Pfeiffer, & Morris, 2002; Pfeiffer & Jarosewich, 2003; Pilavcı, 2021; Robinson & Clinkenbeard, 2008; Frasier, 1995; Spratt, 1994; Silverman, 2003; Havigerová & Burešová, 2015; Gentry et al., 2021; Gilliam et al., 1996; Gilliam & Jerman, 2015; McCarnev & Anderson, 1998; Ryser & McConnell, 2004; Renzulli et al., 2002). Following the review of the related literature, the teachers participating in the study (n=34) were asked for their opinions on the behaviors of a gifted student. Based on these two sources of data, an item pool consisting of 30 items with a Likert scale was created. Some of the items were used from a study by Pilavci after obtaining her permission. All of the items in the pool were reviewed by three experts to ensure content validity and congruence with the Successful Intelligence Theory. They found the items appropriate for the instrument. In the instrument application stage, one professor and two junior researchers (PhD. students in a gifted education program) administered the instrument online after obtaining formal permissions and ethical consents through informed-consent forms. Subsequently, the instrument was sent to teachers to be completed for one of their gifted students. All of the items and the scale range are presented in Table 1 below.

### Table 1

	<u>A</u>	nalytic	cal Inte	elligeno	ce						
Below Average Average Above Average									age_		
1.	Understanding the meaning of new	1	2	3	4	5	6	7	8	9	
2.	Understanding the meaning of	1	2	3	4	5	6	7	8	9	
3.	Making decisions based on detailed	1	2	3	4	5	6	7	8	9	
4.	Identifying the missing pieces in a whole easily and quickly	1	2	3	4	5	6	7	8	9	
5.	Inferring meaning that is not explicitly stated in a sentence	1	2	3	4	5	6	7	8	9	
6.	Being fast in detecting inconsistencies	1	2	3	4	5	6	7	8	9	
7.	Producing effective solutions to problems	1	2	3	4	5	6	7	8	9	

### The items of the Scale and the scale range

8.	Being able to establish cause-effect relationships	1	2	3	4	5	6	7	8	9
9.	Making necessary inferences from data and predictions	1	2	3	4	5	6	7	8	9
10.	Having advanced vocabulary	1	2	3	4	5	6	7	8	9
	Cr	eative	Intelli	gence						
		Belo	w Ave	rage	4	Average	2	Abc	ve Aver	rage
11.	Expressing him/herself by using	1	2	3	4	5	6	7	8	9
	analogies									
12	Using numbers differently from the	1	2	3	4	5	6	7	8	9
12.	usual	•	2	5		5	Ū	,	0	
13	Describing shape and function of	1	2	3	4	5	6	7	8	0
15.	objects differently from the usual	1	2	5	4	5	0	/	0	2
14	Use in a strange disease of	1	2	2	4	-	~	7	0	0
14.	Having an advanced sense of	1	2	3	4	5	0	/	8	9
	imagination					_		_		
15.	Being open to new experiences	1	2	3	4	5	6	7	8	9
16.	Being sensitive to aesthetic	1	2	3	4	5	6	7	8	9
	qualities									
17.	Developing new ideas	1	2	3	4	5	6	7	8	9
18.	Being enthusiastic about generating	1	2	3	4	5	6	7	8	9
	and developing new ideas									
19.	Generating many ideas about a	1	2	3	4	5	6	7	8	9
	subject									
20.	Taking meaningful risks when	1	2	3	4	5	6	7	8	9
	faced with new situataions									
	Pro	actical	Intelli	gence						
		Belo	w Aver	rage	4	Average	2	Abc	ve Aver	rage
21	Idetifying offective wave to solve	1	2	2	4	5	6	7	0	0
21.	Identifying effective ways to solve	1	2	3	4	5	0	/	8	9
22	daily problems	1	•	2		-		-	0	0
22.	Using mathematical calculations	I	2	3	4	5	6	/	8	9
	comfortably in daily life									
23.	Being effective in finding place,	1	2	3	4	5	6	7	8	9
	direction and space in daily life									
24.	Having expectations for	1	2	3	4	5	6	7	8	9
	satisfactory answers in situations									
	that affect one's daily life									
25.	Being an entrepreneur and a quick	1	2	3	4	5	6	7	8	9
	problem solver in daily life									
	problems									
26.	Having the desire to understand how	1	2	3	4	5	6	7	8	9
	materials used in daily life work									
27	Transfering the possessed	1	2	3	4	5	6	7	8	9
	knowledge to different daily life	-	-	5	•	2	0		0	-
	problems easily and quickly									
20	Proceeding cubity and quickly									
· / ^	Adapting to new situations easily	1	2	3	4	5	6	7	8	9

Reacting to illogical situations	1	2	3	4	5	6	7	8	9
encountered in daily life									
Knowing from whom to get best	1	2	3	4	5	6	7	8	9
help when problems are									
encountered in daily life									
	Reacting to illogical situations encountered in daily life Knowing from whom to get best help when problems are encountered in daily life	Reacting to illogical situations 1   encountered in daily life 1   Knowing from whom to get best 1   help when problems are 1   encountered in daily life 1	Reacting to illogical situations 1 2   encountered in daily life 2   Knowing from whom to get best 1 2   help when problems are encountered in daily life	Reacting to illogical situations123encountered in daily lifeKnowing from whom to get best123help when problems are encountered in daily lifeI23	Reacting to illogical situations1234encountered in daily lifeKnowing from whom to get best1234help when problems are encountered in daily life	Reacting to illogical situations12345encountered in daily lifeKnowing from whom to get best12345help when problems are encountered in daily life	Reacting to illogical situations123456encountered in daily lifeKnowing from whom to get best123456help when problems are encountered in daily life	Reacting to illogical situations1234567encountered in daily lifeKnowing from whom to get best1234567help when problems are encountered in daily life	Reacting to illogical situations12345678encountered in daily lifeKnowing from whom to get best12345678help when problems are encountered in daily life

Note: 1 point refers to "Completely Disagree", while 5 refers to "Completely Agree".

In the validity and reliability analyses of the present study, Cronbach's alpha values were initially calculated for the entire scale and its factors. Subsequently, confirmatory factor analysis was conducted to ensure the construct validity. Moreover, criterion-related validity was tested by comparison of the scores of the gifted and unidentified nominated students on the instrument. We know that all of the students rated by their teachers were suggested as gifted students in spite of the fact that only some of them were formally identified. Hence, we do not expect any difference in their scores on the instrument. Concurrent validity was examined by calculating the correlation between the scores on the scale and another screening tool used in Turkey for gifted students (a ten-item scale used for screening school-age gifted children for BİLSEM, a special gifted education program, in Turkey).

#### 2.1 Participants

The participants involved 169 teachers, 93 of whom were females and 76 were males. Out of these participants, 91 rated students who were identified as gifted for the national gifted program, while the other teachers rated unidentified but potentially gifted students. In the national educational program for gifted students, an enrichment program is offered after school hours. In this program, the gifted students are exposed to advanced learning content and engage in small-group activities and projects. The unidentified students do not participate in such a program. The majority of the teachers (n=101) had been with their nominated students over a period of 7 months, and only 10 teachers stated that they knew little about their nominated students. The other teachers claimed to have good knowledge of their nominated students.

#### 2.2 Data analysis

The data analyses conducted at various stages of the present study included descriptive statistics involving minimum values, maximum values, means, and standard deviations, correlation analysis for concurrent validity, independent samples t-test, Cronbach's alpha calculation, and confirmatory factor analysis. To conduct the analyses, SPSS 20 and AMOS 22 were used. For reliability analysis, a Cronbach's alpha value exceeding 0.8 was considered indicative of good internal validity (George & Mallery, 2003). In the confirmatory factor analysis using the maximum likelihood approach, six different goodness-of-fit indices

 $(\chi^2/df, RMSEA, RMR, GFI, CFI and TLI)$  were taken into account. The first index was the chi-square/degrees of freedom ( $\chi^2/df$ ) ratio, and the cut-off point for this index was 5 (Schumacker & Lomax, 2010). Values below 5 were considered as an indication of a good fit to the data. The root mean square error of approximation (RMSEA), the root mean square residuals (RMR), the goodness-of-fit index (GFI), the comparative fit index (CFI), and the Turker-Lewis index (TLI) were also considered in the study. The values for each index were found to be higher than 0.90 for CFI, TLI and GFI and less than 0.08 for RMSEA and RMR values (Schermelleh-Engel, Moosbrugger, & Müller, 2003; Hu & Bentler, 1999; Kline, 2015; Hair, Black, Babin, Anderson, & Tatham, 2010). At the beginning of the analysis for construct validity, the first-order model was examined, and then the second-order factor analysis was conducted because a G factor predicting the other three factors was assumed in the theoretical model. Moreover, the usability of the total score was checked via the second-order factor analysis. The same fit indices were considered in the secondorder factor analysis.

### 3 Results

Before conducting the validity and reliability analysis, preliminary data analyses were performed to check for multivariate normality, outliers, and missing data. There were no outliers in the data (as determined by Mahalanobis distances), and the percentage of missing values was less than 2%. Missing values were replaced with the series mean before conducting further analyses. Then, the correlation matrix was checked for multicollinearity assumption. It was found that there was no multicollinearity among the variables. Moreover, it was found that the factors were statistically significantly related to each other (p<.05). This is also the evidence for validity. The correlation matrix is presented in Table 2 below.

Table 2

correlation matrix rat	ne (1 carson corretai	1011)	correlation matrix table (1 carson correlation)							
<u>Factors</u>	<u>Factors</u>									
	Analytical Intelligence	Creative Intelligence	Practical Intelligence							
Analytical Intelligence	-									
Creative Intelligence	0.82*	-								
Practical Intelligence	0.89*	0.87*	-							
General Intelligence (G)	0.86*	0.77*	0.84*							

Correlation matrix table (Pearson correlation)

Note: \* means significant correlation

Confirmatory factor analysis was carried out after checking the univariate normality, item 2, 4, 7, 12, 13 and 23 were excluded from the analysis due to violation of univariate normality assumption. Item 9, 10, 17, 18, 24, 26 and 28

were also excluded from the analysis due to their loading on two or more factors at the same time. After excluding the items, a correlation matrix and univariate normality were checked, and a confirmatory factor analysis with the maximum likelihood method was conducted for the three-factor solution.

The results of the first-order confirmatory factor analysis revealed that fit and non-fit indices of  $\chi^2$  /df ratio, RMSEA, RMR, CFI and TLI were within acceptable range. The values for the  $\chi^2$  /df ratio, RMSEA, RMR, CFI and TLI were 1.99, 0.07, 0.06, 0.96 and 0.95, respectively, for the three-factor solution (Schermelleh-Engel et al., 2003; Hu & Bentler, 1999; Kline, 2015; Hair et al., 2010). Only the GFI value of 0.86 was below the cut-off point (.90). However, some researchers suggest that values over 0.85 are acceptable (Schermelleh-Engel et al., 2003). The factor loadings of the items ranged from 0.609 to 0.932 (see Table 3).

Table 3

Fuctor touu	ungs oj in			
Item Number	Items	Analytical Intelligence	Creative Intelligence	Practical Intelligence
1	a1	.793		
3	a3	.900		
5	a5	.861		
6	a6	.826		
8	a8	.932		
9	y1		.823	
14	y4		.609	
15	y5		.839	
16	уб		.625	
19	y9		.868	
20	y10		.753	
21	p1			.858
22	P2			.872
25	P5			.885
27	P7			.877
29	P9			.842
30	P10			.814

Factor loadings of the items

The measurement model generated from the theoretical model and the calculated regression values after the modifications are portrayed in Figure 2 below.

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Figure 2. The tested model in the study and regression values of each item.

The findings indicated that the data of the study fit well into the anticipated model. Cronbach's alpha values for Analytical thinking, Creative thinking, Practical Thinking, and the total scale were 0.94, 0.89, 0.94, and 0.97, respectively, and they were found to be higher than the acceptable cut-off point (George & Mallery, 2003). After the first-order factor analysis, a second-order factor analysis was needed to determine whether the total scores of the factors could be used for nomination purposes. The findings of the second-order factor analysis are presented in Figure 3.

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*Figure 3.* The tested model in the second-order factor analysis and regression values of each item.

The results of the second-order confirmatory factor analysis were the same as the results of the first-order factor analysis. The findings revealed that fit and non-fit indices of  $\chi^2$  /df ratio, RMSEA, RMR, CFI and TLI were within acceptable range. The values for the  $\chi^2$  /df ratio, RMSEA, RMR, CFI and TLI were 1.99, 0.07, 0.06, 0.96 and 0.95, respectively for a three-factor solution (Schermelleh-Engel et al., 2003; Hu & Bentler, 1999; Kline, 2016; Hair et al., 2010). Only the GFI value of.86 was below the cut-off point (.90). However, some researchers propose that all GFI values over 0.85 are acceptable (Schermelleh-Engel et al., 2003). The factor loadings of the items in the second-order factor analysis were similar to those found in the first-order factor analysis.

#### 3.1 Criterion-related validity

The comparison between the scores assigned by the teachers for their gifted students and the unidentified students was another source of evidence for validity. At the beginning, it was expected that the teachers would select either gifted students or unidentified gifted students for evaluation. Hence, there should be no difference between the scores of the two groups of students. Independent

samples t-tests with Bonferroni adjustment (0.05/4=0.01) were used to compare the scores. Among all the participating teachers, 91 of them evaluated their gifted students, while the remaining teachers evaluated potentially gifted unidentified students. The findings revealed that there was no statistically significant difference between the scores given by the teachers in terms of analytical intelligence and practical intelligence, while there was a significant difference in terms of creative intelligence in favor of unidentified students. The comparative results are presented in Table 4 below.

#### Table 4

analytical and practical intelligences								
Factors Groups		<u>Means (SD)</u> <u>Levene's Test for</u>		Test for	<u>t</u>	df	<u>p</u>	
			Equa	lity of				
			Varie	inces				
			F	p				
Analytical	Gifted students	7.77 (1.30)	7.59	0.01	2.01	138	0.03	
Intelligence	(n=91)							
Ţ.	Unidentified students	8.17 (.77)						
	(n=78)							
Creative	Gifted students	7.52 (1.28)	5.90	0.02	2.80	138	0.006*	
Intelligence	(n=91)							
Ţ.	Unidentified students	8.01 (0.78)						
	(n=78)							
Practical	Gifted students	7.74 (1.32)	5.46	0.02	2.19	138	0.03	
Intelligence	(n=91)							
0	Unidentified students	8.12 (.73)						
	(n=78)	. ,						
General	Gifted students	7.69 (1.20)	5.49	.02	2.00	138	0.05	
Intelligence	(n=91)							
0	Unidentified students	8.04 (.84)						
	( 70)	( )						

Independent t-test results for comparison of the teachers' scores on creative, analytical and practical intelligences

Note: \* means a statistically significant difference

#### 3.2 Concurrent validity

Concurrent validity evidence showed that the scores assigned by the teachers on the factors of the scale were found to be associated with the scores of the students on a general nominating tool. The correlation between the scores on the analytical intelligence and the scores on general-nominating tool was found to be 0.86 (p<.05). The relationship between the scores on creative intelligence and the scores on the general nominating tool was found to be 0.76 (p<.05). Finally, the correlation between the scores on practical intelligence and those on the general nominating tool was found to be significant (r=0.83, p<.05).

### 3.3 Descriptive findings

The descriptive statistics generated through the nomination process using the scale revealed that teachers generally assigned high scores to their students. The average of all ratings made by the teachers was 7.72. This value corresponds to "above average" on the scale. The descriptive findings of the study for each factor of the scale are presented in Table 5 below.

Table 5

2 eser iprire finantigs e	in the Jure		Server ar ri	
<u>Factors</u>	Min.	Max	<u>Mean</u>	<u>SD</u>
Analytical intelligence	1	9	7.79	1.28
Creative intelligence	2	9	7.65	1.17
Practical intelligence	1	9	7.77	1.27
General intelligence	1	9	7.71	1.21

Descriptive findings on the factors and general intelligence

### 4 Discussion

In the present study, the aim was to develop a teacher rating scale for nominating gifted students for special gifted education programs. Both the reliability and validity of the scale, including content validity, construct validity, criterion-related validity, and concurrent validity, were ensured. The reliability coefficients were found to be 0.94, 0.89, 0.94 and 0.97 for the three factors and the entire scale. These reliability coefficients are higher than the cut-off value of 0.80 (Bracken, Keith, & Walker, 1998). This indicates a strong internal consistency of the scores on the items. It can be asserted that the scores on the scale are relatively free from measurement error and the instrument can be used for further purposes in the area of nomination.

In validity analyses, supportive evidence was found in terms of content validity, construct validity, criterion-related validity and concurrent validity. The content of the scale was matched with the content provided by a previous study (Pilavcı, 2021), and the factors and items were appropriately matched in terms of the components of the Successful Intelligence Theory. Moreover, three experts found the items appropriate in terms of representing the theory and fulfilling the purpose of the scale. Therefore, the findings supported the notion that the components of the scale are in line with the intended construct of the scale (Sireci, 1998; Sireci & Faulkner-Bond, 2014). The contruct validity for a three-factor solution was also supported by the analyses. Sternberg (2018) defined three components. According to Sternberg's (2018) theory, giftedness involves analytical, practical, and creative intelligences, and they are not only associated with each other but also with a G factor. In the analysis, each item was classified under a component of the successful intelligence theory, and the statistical

examinations supported the expected associations among the items and the factors. For the construct validity of the scale, acceptable values of fit indices were also reported in the literature for other teacher rating scales targeting gifted students, even though they were based on different theoretical models (Lee, Gentry, & Maeda, 2022; Sofologi et al., 2022). Support for construct validity could also be associated with the strength of the theoretical background. The successful intelligence theory was applied to different stages of identification and education of gifted students and is a very comprehensive and effective theory for explaining giftedness (Sternberg et al., 1998; Sternberg & Grigorenko, 2002; Sternberg, 2019). Owing to these characteristics, the generation and categorization of items under the components of the theory were systematic and obvious. Therefore, it can be asserted that the theoretical structure on which the instrument was developed was confirmed by the validity evidence gathered in this study.

In the present study, criterion-related and concurrent validities were also confirmed by the evidence. In terms of criterion-related validity, it was observed that the teachers assigned high scores to both gifted and unidentified but potentially gifted students. This finding also indicates that the teachers had assigned high scores to behaviors rather than focusing solely on the label of giftedness. Even though some teachers can identify their gifted students, they assign similar scores to those teachers who give high scores to their unidentified potentially gifted students. In terms of concurrent validity, the correlation between the scores assigned by the teachers on the scale and the general nomination scale or tool was found to be significant. Because the scores on the scale are assigned by considering detailed and specific behaviors, while the scores on the general nomination scale or tool were based on general characteristics such as "strong memory". The common factor between the two instruments was the G factor. Therefore, they should be associated with each other as found in this study. Previous studies have shown that analytical, creative, and practical intelligences are associated with the general academic and cognitive performance of students (Ferrando, Ferrándiz, Llor, & Sainz, 2016).

The results on the validity and reliability supported the notion that the scale is appropriate to be used for nomination purposes by teachers in gifted education programs. Not only the number of items in the scale and the short application time, but also the easy scoring procedures make it advantageous for use in different contexts. The scale might also be used when multiple resources of data are required. The teachers might use it in conjunction with different tools, such as intelligence tests. Hence, the scale has the potential to be used for different purposes in gifted education programs.

### Conclusion

The information provided by teachers about gifted students is effective in influencing educators' decisions in program development. Therefore, this study aims to develop a Teacher Rating Scale for Giftedness (TRSG) for nominating gifted children for special education programs. The study consists of three stages: item generation, instrument application, and validity-reliability analyses. To ensure the validity of the scale, content, structure, and criterion-related validity were examined, while Cronbach's alpha was calculated to ensure reliability. The analysis supported the three-factor structure of the 17-item scale. According to the research results, TRSG was found to be a valid and reliable tool that can be used for nominating gifted children based on teacher assessments. The relatively low number of items in the scale, a short application duration, and the ease of scoring make it advantageous for use in various contexts.

The analyses provided strong evidence for the validity and reliability of the scale; however, the sample size of the teachers was smallIn the literature, different researchers have suggested different sample sizes. Nunnally (1978) found 300 participants to be adequate for scale development studies, while MacCallum, Widaman, Zhang, and Hong (1999) considered 200 participants to be sufficient in scale development studies. In this study, the use of convenience sampling and the fact that only 169 teachers could be reached is one limitation of the study. Future studies can be conducted with larger sample sizes. Another limitation is rating bias. The teachers' rating bias should be considered when interpreting the results of the present study. In future studies, supplementary instruments should also be used to check bias in student nomination. Moreover, pre-school and adult versions of the scale are needed to make nominations effective at these levels. Furthermore, making comparisons between different groups of gifted students requires different versions for subgroups of gifted people, such as gifted students with low SES.

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### References

- Alma, S. (2015). Üstün yetenekliliği derecelendirme ölçekleri-okulöncesi/ anaokul formu (GRS-P)'nun Türkçeye uyarlanması (Unpublished master's thesis). Turkey: Selçuk University.
- Biber, M., Biber, S. K., Ozyaprak, M., Kartal, E., Can, T., & Simsek, I. (2021). Teacher nomination in identifying gifted and talented students: Evidence from Turkey.

*Thinking Skills and Creativity*, *39*(14), 100751. https://doi.org/10.1016/j.tsc. 2020.100751

- Bracken, B. A., Keith, L. K., & Walker, K. C. (1998). Assessment of preschool behavior and social-emotional functioning: A review of thirteen third-party instruments. *Journal of Psychoeducational Assessment*, 16(2), 153-169. https://doi.org/10.1177/073428299801600204
- Ferrando, M., Ferrándiz, C., Llor, L., & Sainz, M. (2016). Successful intelligence and giftedness: An empirical study. *Anales de Psicología/Annals of Psychology*, 32(3), 672-682. https://doi.org/10.6018/analesps.32.3.259431
- Frasier, M. M. (1995). Core Attributes of Giftedness: A Foundation for Recognizing the Gifted Potential of Minority and Economically Disadvantaged Students. Retrieved from https://files.eric.ed.gov/fulltext/ED402703.pdf
- Gentry, M., Pereira, N., Peters, S. J., McIntosh, J. S., & Fugate, C. M. (2021). *Hope teacher rating scale: Administration Manual*. New York, NY: Routledge.
- George, D., & Mallery, P. (2003). SPSS for Windows step by step: A simple guide and reference 11.0 update (4th ed.). Boston: Allyn & Bacon.
- Gilliam, J. E., & Jerman, O. (2015). GATES-2: Gifted and Talented Evaluation Scales -Second Edition [Measurement instrument]. Austin, TX: Pro-Ed. Retrieved from https://www.proedinc.com/Products/14445/gates2-gifted-and-talented-evaluationscalessecond-edition.aspx
- Gilliam, J. E., Carpenter, B. O., & Christensen, J. R. (1996). *Gifted and Talented Evaluation Scales: A norm-referenced procedure for identifying gifted and talented students*. Austin, TX: Pro-Ed.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2010). *Multivariate Data Analysis* (6th edition). Upper Saddle River, NJ: Pearson.
- Havigerová, J. M., & Burešová, I. (2015). Gender differences in characteristics of giftedness scale scores in preschool children. *International Journal of Early Childhood Learning*, 22(1), 11-20. https://doi.org/10.18848/2327-7939/CGP/ v22i01/48435
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1-55. https://doi.org/10.1080/ 10705519909540118
- Jarosewich, T., Pfeiffer, S. I., & Morris, J. (2002). Identifying gifted students using teacher rating scales: A review of existing instruments. *Journal of Psychoeducational assessment*, 20(4), 322-336. https://doi.org/10.1177/ 073428290202000401
- Kline, R. B. (2016). *Principles and Practice of Structural Equation Modeling*. New York: Guilford publications.
- Lee, H., Gentry, M., & Maeda, Y. (2022). Validity evidence of the HOPE scale in korea: Identifying gifted students from low-income and multicultural families. *Gifted Child Quarterly*, 66(1), 23-40. https://doi.org/10.1177/00169862211024590
- MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. *Psychological Methods*, 4(1), 84-99. https://doi.org/10.1037/1082-989X.4.1.84

- Machů, E., & Lukeš, P. (2019). Teachers' work with taxonomy of educational objectives as one of the forms of the gifted preschoolers' development. *Acta Educationis Generalis*, 9(3), 1-15. https://doi.org/10.2478/atd-2019-0011
- McCarney, S. B., & Anderson, P. D. (1998). The Gifted Evaluation Scale Technical Manual (2nd ed.). Columbia: Hawthorne Educational Services.
- Nguyen, P. L. T., Nguyen, C. H., Dang, C. X., & Duong, H. T. T. (2022). Proposing a framework to assess the intellectual development and competence of Vietnamese students based on Sternberg's Triarchic theory of intelligence. *Journal of Language* and Linguistic Studies, 18(2), 685-700.
- Nunnally, J. C. (1978). Psychometric Theory (2nd ed.). New York: McGraw-Hill.
- Petscher, Y., & Pfeiffer, S. I. (2020). Reconsidering the psychometrics of the GRS-S: Evidence for parsimony in measurement. Assessment for Effective Intervention, 46(1), 55-66. https://doi.org/10.1177/1534508418824743
- Pfeiffer, S. I., & Jarosewich, T. (2003). *Gifted Rating Scales*. The Psychological Corporation. Retrieved from http://www.pearsonassessments.com/HAIWEB/ Cultures/en-us/Productdetail.htm?Pid=015-8130-502&Mode=summary
- Pfeiffer, S. I., & Petscher, Y. (2008). Identifying young gifted children using the gifted rating scales - Preschool/kindergarten form. *Gifted Child Quarterly*, 52(1), 19-29. https://doi.org/10.1177/0016986207311055
- Pfeiffer, S. I., Petscher, Y., & Kumtepe, A. (2008). The Gifted Rating Scales-School Form: A validation study based on age, gender, and race. *Roeper Review*, 30(2), 140-146. https://doi.org/10.1080/02783190801955418
- Pilavcı, N. B. (2021). 4-5 yaş grubu özel yetenekli öğrencilerin tanılanması üzerine bir model geliştirilmesi: Türkiye örneği (Unpublished master's thesis). Turkey: Hacettepe University.
- Renzulli, J. S., Smith, L. H., White, A. J., Callahan, C. M., Hartman, R. K., & Westberg, K. L. (2002). Scales for Rating the Behavioral Characteristics of Superior Students: Revised edition. Mansfield Center, CT: Creative Learning Press. Retrieved from http://www.creativelearningpress.com/scalesforratingthebehavioralcharacteristicsofs uperiorstudents--50scales.aspx
- Robinson, A., & Clinkenbeard, P. R. (2008). History of giftedness: Perspectives from the past presage modern scholarship. In S. I. Pfeiffer (Ed.), *Handbook of giftedness in children* (pp. 13-31). New York, NY: Springer Science & Business Media.
- Ryser, G. R., & McConnell, K. (2004). Scales for Identifying Gifted Students: Ages 5 through 18. Waco, TX: Prufrock Press. Retrieved from http://www.prufrock.com/ productdetails.cfm?PC=212
- Sabbah, S. S., & Aldin, A. M. A. (2022). Distinctive behavioral characteristics of outstanding students in the light of Triarchic theory of intelligence from the point of view of students and their teachers. *International Journal of Health Sciences*, 6(S2), 8624-8639. https://doi.org/10.53730/ijhs.v6nS2.7236
- Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online*, 8(2), 23-74.
- Schneider, W. J., & McGrew, K. S. (2022). The Cattell–Horn–Carroll theory of cognitive abilities. In D. P. Flanagan, & E. M. McDonough (Eds.), *Contemporary Intellectual*

Assessment: Theories, Tests, and Issues (pp. 73-163). New York: The Guilford Press.

- Schumacker, R. E., & Lomax, R. G. (2010). A beginner's guide to structural equation modeling (3rd ed.). New York: Taylor & Francis Group.
- Silverman, D. (2003). *Doing Qualitative Research*. Thousand Oaks, California: Sage Publications.
- Sireci, S. G. (1998). The construct of content validity. *Social Indicators Research*, 45(1), 83-117. https://doi.org/10.1023/A:1006985528729
- Sireci, S. G., & Faulkner-Bond, M. (2014). Validity evidence based on test content. *Psicothema*, 26(1), 100-107. https://doi.org/10.7334/psicothema2013.256
- Sofologi, M., Papantoniou, G., Avgita, T., Lyraki, A., Thomaidou, C., Zaragas, H., Ntritsos, G., Varsamis, P., Staikopoulos, K., Kougioumtzis, G., Papantoniou, A., & Moraitou, D. (2022). The Gifted Rating Scales-Preschool/Kindergarten Form (GRS-P): A preliminary examination of their psychometric properties in two greek samples. *Diagnostics*, *12*, 2809. https://doi.org/10.3390/diagnostics12112809
- Spratt, J. J. (1994). Increasing the Number of Elementary Students Found Eligible for Placement in a Gifted Program by Improving the Prescreening Process through Increased Training for School Staff and Parent Education. Retrieved from https://files.eric.ed.gov/fulltext/ED378780.pdf
- Sternberg, R. J. (1999). Successful intelligence: Finding a balance. Trends in Cognitive Sciences, 3(11), 436-442. https://doi.org/10.1016/S1364-6613(99)01391-1
- Sternberg, R. J. (2002). Raising the achievement of all students: Teaching for successful intelligence. *Educational Psychology Review*, *14*(4), 383-393.
- Sternberg, R. J. (2018). The triarchic theory of successful intelligence. In D. P. Flanagan, & E. M. McDonough (Eds.), *Contemporary Intellectual Assessment: Theories, Tests, and Issues* (pp. 174-194). New York: The Guilford Press.
- Sternberg, R. J. (2019). Teaching and assessing gifted students in STEM disciplines through the augmented theory of successful intelligence. *High Ability Studies*, 30(1-2), 103-126. https://doi.org/10.1080/13598139.2018.1528847
- Sternberg, R. J., & Grigorenko, E. L. (2002). The theory of successful intelligence as a basis for gifted education. *Gifted Child Quarterly*, 46(4), 265-277. https://doi.org/10.1177/001698620204600403
- Sternberg, R. J., Torff, B., & Grigorenko, E. (1998). Teaching for successful intelligence raises school achievement. *The Phi Delta Kappan*, 79(9), 667-669.
- Sternberg, R. J. (2020). The augmented theory of successful intelligence. In R. J. Sternberg (Ed.), *Cambridge handbook of intelligence* (2nd ed., pp. 679-708). New York: Cambridge University Press.
- Westberg, K. L. (2012). Using teacher rating scales in the identification of students for gifted services. In S. Hunsaker (Ed.), *Identification: The Theory and Practice of Identifying Students for Gifted and Talented Education Services* (pp. 363-379). New York: Routledge.

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