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Front Pages

Athens Journal of Education

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ATINER is an Athens-based World Association of Academics and Researchers based in Athens. ATINER is an independent and non-profit Association with a Mission to become a forum where Academics and Researchers from all over the world can meet in Athens, exchange ideas on their research and discuss future developments in their disciplines, as well as engage with professionals from other fields. Athens was chosen because of its long history of academic gatherings, which go back thousands of years to Plato's Academy and Aristotle's Lyceum. Both these historic places are within walking distance from ATINER's downtown offices. Since antiquity, Athens was an open city. In the words of Pericles, Athens"…is open to the world, we never expel a foreigner from learning or seeing". ("Pericles' Funeral Oration", in Thucydides, The History of the Peloponnesian War). It is ATINER's mission to revive the glory of Ancient Athens by inviting the World Academic Community to the city, to learn from each other in an environment of freedom and respect for other people's opinions and beliefs. After all, the free expression of one's opinion formed the basis for the development of democracy, and Athens was its cradle. As it turned out, the Golden Age of Athens was in fact, the Golden Age of the Western Civilization. Education and (Re)searching for the 'truth' are the pillars of any free (democratic) society. This is the reason why Education and Research are the two core words in ATINER's name.

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The ***Athens Journal of Education (AJE)*** is an Open Access quarterly double-blind peer reviewed journal and considers papers from all areas of history. Many of the papers published in this journal have been presented at the various conferences sponsored by the Education Unit of the Athens Institute for Education and Research (ATINER). All papers are subject to ATINER's Publication Ethical Policy and Statement.

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Athens Journal of Education
Editorial and Reviewers' Board

President's Message

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The current issue is the fourth of the eleventh volume of the *Athens Journal of Education (AJE), published by the Education Unit of ATINER.*

Gregory T. Papanikos
President
ATINER

Athens Institute for Education and Research

A World Association of Academics and Researchers

27th Annual International Conference on Education
19-22 May 2025, Athens, Greece

The Education Unit of ATINER organizes its **27th Annual International Conference on Education, 19-22 May 2025, Athens, Greece** sponsored by the Athens Journal of Education. The aim of the conference is to bring together scholars and students of education and other related disciplines. You may participate as stream leader, presenter of one paper, chair a session or observer. Papers (in English) from all areas of education are welcome. Please submit a proposal using the form available (https://www.atiner.gr/2025/FORM-EDU.doc).

Academic Members Responsible for the Conference

- **Dr. Gregory T. Papanikos**, President, ATINER.
- **Dr. David Philip Wick**, Director, Arts, Humanities and Education Division, ATINER & Professor of History, Gordon College, USA.
- **Dr. Nick Linardopoulos**, Head, Education Unit, ATINER & Associate Teaching Professor & Public Speaking Course Coordinator, Rutgers University, USA.
- **Dr. John Spiridakis**, Co-Editor, Athens Journal of Education & Professor, St. John University, USA.

Important Dates

- Abstract Submission: **28 January 2025**
- Acceptance of Abstract: 4 Weeks after Submission
- Submission of Paper: **21 April 2025**

Social and Educational Program

The Social Program Emphasizes the Educational Aspect of the Academic Meetings of Atiner.

- Greek Night Entertainment (This is the official dinner of the conference)
- Athens Sightseeing: Old and New-An Educational Urban Walk
- Social Dinner
- Mycenae Visit
- Exploration of the Aegean Islands
- Delphi Visit
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Conference Fees

Conference fees vary from 400€ to 2000€
Details can be found at: https://www.atiner.gr/fees

9th Annual International Symposium on "Higher Education in a Global World", 7-10 July 2025, Athens, Greece

The Education Unit of ATINER is organizing the 9th **Annual International Symposium on "Higher Education in a Global World", 7-10 July 2025, Athens, Greece** sponsored by the Athens Journal of Education. The aim of the symposium is to examine educational developments throughout the world in universities, polytechnics, colleges, and vocational and education institutions. Academics and researchers from all areas of education are welcomed. You may participate as stream organizer, presenter of one paper, chair a session or observer. Please submit a proposal using the form available (https://www.atiner.gr/2025/FORM-COLEDU.doc).

Important Dates

- Abstract Submission: **3 December 2024**
- Acceptance of Abstract: 4 Weeks after Submission
- Submission of Paper: **9 June 2025**

Academic Member Responsible for the Conference

- **Dr. Gregory T. Papanikos**, President, ATINER.
- **Dr. Sharon Claire Bolton**, Vice President of Research, ATINER & Professor, The Management School, University of Stirling, Scotland.
- **Dr. David Philip Wick**, Director, Arts, Humanities and Education Division, ATINER & Professor of History, Gordon College, USA.
- **Dr. John Spiridakis**, Co-Editor, Athens Journal of Education & Professor, St. John University, USA.
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Navigating Challenges in Gifted Education: A Teacher's Perspective on Overcoming Barriers

By Lukanda Kalobo[*] & Wendy Setlalentoa[±]

Gifted education is of utmost importance in the development and growth of intellectually advanced students; however, it often encounters various obstacles that hinder its effectiveness. This research delves into the perspectives of teachers regarding the overcoming of these barriers to providing effective gifted education. Employing qualitative research methods, a combination of interviews and surveys is conducted to gather valuable insights from a diverse group of teachers. The findings shed light on several challenges faced by teachers, including limited resources, inadequate training, and insufficient support from stakeholders. To address these challenges, teachers put forth potential solutions that could lead to the improvement of gifted education. These solutions encompass enhanced professional development opportunities for teachers, increased funding to allocate resources effectively, and the promotion of collaboration among all stakeholders involved. By effectively addressing these barriers, a more inclusive and nurturing environment can be fostered for gifted students. The study underlines the importance of integrating modules on gifted education into teacher education programs. By incorporating these modules, future educators can be equipped with the knowledge and skills necessary to effectively support and educate gifted students. Consequently, the implementation of the GATE policy to promote good practice plays a key role in gifted education. Ultimately, this research contributes to a deeper understanding of the challenges faced in gifted education and provides valuable insights that can inform policies and practices aimed at supporting the education of gifted students.

Keywords: barriers to gifted, gifted learners, teachers' perspectives, teachers' development.

Introduction

Teachers' education, training, and support should prioritize the development of skills necessary for understanding gifted education. Limited training in working with gifted students in traditional classroom settings poses a challenge for educators (Kettler, Oveross & Bishop, 2017). Teachers' perceptions and knowledge significantly impact student learning in gifted education (Clark, 2008). These perceptions influence classroom interactions, teaching methods, and learning outcomes (Troxclair, 2013). External factors, such as a country's historical, cultural, and political context, can shape perceptions and policy decisions in gifted education (Taylor & Kokot, 2000). In South Africa, there is limited knowledge

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about efforts to maximize the potential of gifted students, increasing the risk of underachievement (Al-Oweidi, 2019).

Empirical studies on teachers' perceived barriers to gifted education are valuable for improving gifted learner programs. Professional development is crucial for teachers to effectively recognize and serve gifted students (Khalil & Accariya, 2016; Rowley, 2012; Sayi, 2018). Understanding teacher perceptions is essential for identifying necessary actions to enhance gifted education.

Barriers to Gifted Education

Lack of proper training for education professionals is a significant barrier to the creativity, identification, and inclusion of gifted students (Piske, Stoltz, Vestena, Freitas, Valentim, de Oliveira, Barby, & Machado, 2016). Teachers who have a better understanding of the needs of gifted children can develop effective teaching strategies that stimulate their creativity and cultivate their curiosity and desire to learn (Piske, 2015). Unfortunately, the creative potential of exceptional students often receives insufficient attention in schools, and teachers are frequently unprepared to meet their needs (Piske, 2016). Mere enough, notifying gifted children is not enough; schools must also have inclusive measures in place to support these students and provide teaching that encourages their imagination and creativity.

Barriers to the Creativity of Gifted Student

Creativity in the teaching and learning process is often stifled by pedagogical strategies used in many institutions (Piske, Stoltz, Machado, 2014). Gifted students, who are known for their exceptional creativity, require educational approaches that cater to their unique needs (Alencar, 2001, 2007; Peterson, 2003; Renzulli, 2004; Pérez, 2004; Piske, 2011, 2013; Piske & Stoltz, 2013; Prieto, Soto, & Fernandez, 2013). Several barriers hinder the development of creativity in gifted individuals, including repetitive teaching, uniformity of knowledge, unprepared teachers, traditional teaching and learning processes, reductionist educational contexts, and a lack of creativity and innovation in classes (Alencar & Fleith, 2001; Pérez, 2004, 2009; Piske, 2013a, 2013b, 2014a, 2014b, 2016; Piske, Stoltz, & Machado, 2014a, 2014b; Machado, 2013). To maximize their creative potential, the use of educational techniques is crucial, such as promoting autonomy, openness to variety, and idea formation over conformity and uniformity (Bahia & Trindade, 2013). Creating a climate that encourages originality, innovation, and the production of unusual ideas is essential for nurturing creativity in the classroom (Bahia & Trindade, 2013).

Barriers to Identification of Gifted Student

Barriers to the identification of gifted children in schools stem from various factors, including the traditional view of education, lack of respect for differences,

insufficient challenges, difficulty in recognizing high abilities, limited awareness of enrichment, and students' special needs (Piske, Stoltz, et al., 2016; Alencar, 2009, 2014; Virgolim, 2007; Pérez, 2004). Schools must be prepared to understand students' abilities, interests, and developmental dimensions, providing opportunities for them to construct knowledge at their own pace (Virgolim, 2007). Recognizing the unique needs of gifted children and overcoming barriers requires reflecting on knowledge, embracing diversity, promoting creativity, and acknowledging students' high abilities (Piske, Stoltz, et al., 2016).

Barriers to the Inclusion of Gifted Student

Efforts towards inclusive education often fall short of fully respecting and addressing the rights of children with special needs, including gifted children (Melo and Almeida, 2007; Bahia and Trindade, 2013, 2014; Bahia, 2016; Piske, 2015, 2016). To support these children, society must mobilize and take action. Identifying and diagnosing the needs of gifted students is the first step toward providing them with specialized services. Developing inclusive schools should be a prominent government policy, requiring adequate resources and political commitment at all levels (United Nations Educational, Scientific and Cultural Organization [UNESCO], Salamanca Statement, 1994: 41). However, there is still a significant gap in achieving full inclusion for gifted children in South Africa's school programs at all levels.

Teachers' Viewpoints about Gifted Students

Empirical studies from multiple countries reveal conflicting views among teachers regarding giftedness (Matheis et al., 2017). Empirical studies consistently validate the correlation between cognitive attributes and giftedness. These attributes include heightened processing speed, adept problem representation, flexible strategy selection, a broad knowledge base, and more (Aubry et al., 2021; Rodríguez Naveiras et al., 2019), while also displaying leadership qualities and a positive impact on the classroom. However, there is a pessimistic perception of giftedness linked to poor social, emotional, or behavioral competencies (Baudson & Preckel, 2013; Preckel et al., 2015). Some studies suggest higher intellect but lower emotional stability, agreeableness, and prosocial behavior among gifted students (Baudson & Preckel, 2013; Preckel et al., 2015), which can result in boredom, disinterest, and related challenges (Ozcan & Kotek, 2015; Lassig, 2009).

The disharmony hypothesis proposes a link between high cognitive ability and negative non-cognitive qualities, potentially explaining teachers' negative perceptions (Matheis et al., 2017). However, research indicates no association between giftedness and psychological disorders, nor discernible differences in social and emotional skills compared to average-ability students. Teachers' perceptions are not solely influenced by professional experience, but training in gifted education tends to foster positive attitudes (Lassig, 2009; Pedersen & Kronborg, 2014; Plunkett & Kronborg, 2016). Prioritizing ongoing professional

development is crucial to reshaping perceptions and creating inclusive environments for gifted education (Schleicher, 2016).

Gifted and Talented Education (GATE) Policy for Schools Based

The government policy is always based on the equalization of opportunity in every corner of society (Das, 2022). Policies and practices related to capacity development within a system can play a key role in promoting diversity and inclusion in education systems (Organisation for Economic Co-operation and Development [OECD], 2021). Recent policy initiatives emphasise the importance of nurturing opportunities for creativity and curiosity to support young people to thrive in rapidly changing societies (OECD, 2021; UNESCO, 2022). GATE policy promotes good practice in the identification, teaching, learning, and management of students who are deemed gifted and talented (OECD, 2021). Numerous authors stress the absence of consistent national and international policy studies on gifted education (OECD, 2021). Ninkov, I. (2020) suggests enhancing education policies for inclusive learning environments for gifted children. These policies emphasise fostering individuality and diversity among the gifted, highlighting the importance of educated children as a nation's greatest asset. Unfortunately, in sub-Saharan Africa, which is still in the early stages of practicing inclusive education, knowledge about GATE is limited because preservice teacher training programs have yet to prioritize this subject area (Opoku et al., 2023). This can be the case with the GATE policy for schools based in South Africa, embracing inclusive education. This GATE policy has a substantial barrier to the creativity, identification, and inclusion of gifted students.

Research Questions

The study sought to answer the following questions:

How do mathematics teachers perceive barriers to implementing gifted education?
How can we overcome barriers to enhance gifted education provision in mathematics?

Objectives of the Study

This study has two objectives:

To explore the mathematics teachers' perceived barriers to gifted education
To understand what can be done to deal with the barriers to gifted education

Methods

Research Design

This qualitative study aimed to understand mathematics teachers' perceptions of barriers to gifted education. One hundred and sixteen teachers participated in focus group discussions, providing valuable insights. The discussions allowed for collaborative exploration and in-depth examination of the identified barriers. By adopting a qualitative approach, the study captured the complexities and nuances of teachers' experiences and viewpoints. The findings offer valuable insights to inform future practices and interventions in the field of gifted education.

Research Instrument

This study employed an open-ended questionnaire to explore perceived barriers to gifted education in South Africa. The questionnaire had six sections covering various aspects of gifted education. By utilizing this approach, the researchers aimed to gather detailed responses and insights from teachers. The study specifically focused on identifying barriers to gifted education and aimed to inform policies and interventions to address these challenges. The goal was to strengthen the field of gifted education and provide better support for gifted learners.

Participants

Participants in this study were selected from the AMESA 2017 conference, representing math educators in South Africa. The sample includes 116 mathematics teachers. The diverse sample ensured reliable data. The study employed voluntary participation and member checks to validate the findings, enhancing the credibility of the research.

Results and Data Analysis

The teachers reflected on their present reality in school to give the researchers more insight into their perceptions (Ismail & Jarrah, 2019). The teachers' responses were coded into three categories: barriers to creativity, barriers to identification, and barriers to inclusion, using a predefined rubric. Each category was then further divided into subcategories based on the analysis of the teachers' questionnaires.

Mathematics Teachers' Perceived Barriers to Gifted Education

Regarding the first research aim, respondents described barriers to creativity, identification, and inclusion of gifted children. Two main barriers, namely creativity, and identification, were discussed in detail, indicating that mathematics teachers

shared more about their experiences with these specific barriers. However, the discussion of barriers to the inclusion of gifted students was limited, with only a few teachers providing superficial answers, demonstrating a narrow perspective.

The Barriers to Creativity

Barriers to the creativity of gifted students were frequently discussed and categorized into six subcategories: repetitive teaching, uniformity of knowledge, unprepared teachers, traditional teaching methods, limited educational context, and lack of creativity during classes. However, none of the mathematics teachers mentioned all six subcategories.

Repetitive Teaching

Participants in the study identified repetitive teaching as a significant barrier that can impede the holistic development of gifted students' talents. This finding, supported by the National Survey on Education and Abilities of the Intellectually Gifted (National Special Educational Advocacy Institute [NSEAI], 2008), emphasizes the negative impact of repetitive teaching practices on gifted students. These barriers restrict the exploration of their abilities and limit opportunities for creative and intellectually stimulating tasks. To fully unlock the potential of gifted students, it is crucial to address and overcome these barriers associated with repetitive teaching methods.

Participant (0008) explained:

> "They are not challenged by the percentage of routine questions asked in the exam papers".

Another participant (0001) wrote:

> "Repetition and drill have become popular in the classroom. Teachers need only to encourage children to solve questions they may have".

These findings underscore the significance of recognizing and addressing the barriers related to repetitive teaching. To overcome these obstacles, it is essential to promote instructional approaches that foster critical thinking and creativity. By providing opportunities for personalized learning and challenging tasks, educators can tap into the potential of gifted students and enrich the educational experience for all. Creating an inclusive and stimulating learning environment plays a vital role in nurturing the unique talents of gifted students and supporting their holistic development.

Uniformity of Knowledge

"Uniformity of knowledge" refers to an education system that treats all students the same, disregarding their differences. This approach can hinder the unique needs of gifted students. To support their development, schools should move away from uniformity and provide tailored instruction and programs that

accommodate their specific needs.

Participant (0040) described:

> "Teaching equally with slow learners".

and participant (0037) added:

> "Teachers must try to make sure that everyone has the same knowledge".

In conclusion, the discussion highlights the importance of addressing the limitations of a uniform education system that disregards the individual differences of students, particularly in the context of gifted students. Participant (0040) expressed concerns about teaching equally to slow learners, while Participant (0037) emphasized the need for everyone to have the same knowledge. However, to better support the development of gifted students, schools should prioritise tailored instruction and programs that cater to their specific needs. Moving away from uniformity and embracing personalised approaches can ensure that gifted students receive the appropriate level of challenge and opportunities for growth, fostering an inclusive educational environment that nurtures their unique talents and abilities.

Teachers who are not prepared to make a class that incites curiosity and interest in learning of their gifted students

Teachers who are not adequately prepared to create a stimulating and intellectually engaging learning environment for gifted students may hinder their curiosity and interest in learning. Teachers need to receive training and support to effectively cater to the unique needs of gifted students.

Participant (0045) depicted:

> "Gifted students may be sorely neglected unless all teachers are aware of their needs and have skills to plan for them effectively".

One more participant (0034) portrayed:

> "Same lesson preparations for all learners".

The discussion underscores the critical role of teacher preparation in fostering a stimulating and intellectually engaging learning environment for gifted students. Insufficient teacher training and awareness of the unique needs of gifted students can hinder their curiosity and interest in learning. Participant (0045) highlights the potential neglect of gifted students unless teachers are equipped with the necessary knowledge and skills to effectively plan for their education. Additionally, the participant (0034) points out the concern of using the same lesson preparations for all learners, which may overlook the specific requirements of gifted students. To support the development and growth of gifted students, teachers must receive adequate training, support, and resources that enable them to create tailored

instructional approaches that cater to the unique needs and abilities of gifted learners. By doing so, teachers can create a learning environment that nurtures and challenges gifted students, promoting their intellectual engagement, and maximizing their educational potential.

The Traditional Process of Teaching and Learning

The traditional teaching approaches are generally teacher-directed and where students are taught in a manner that is conducive to sitting and listening (Tukaram & Machisella, 2018).

One more participant (0036) unveiled:

> "They are bored since they usually sit and just listen to the teachers talking for some time".

Participant (0019) described:

> "Schools where gifted students are not assessed accordingly. They are mixed their papers are not special and it will look like an easy paper not challenging".

Traditional teaching approaches that prioritize passive listening can lead to boredom among gifted students (Participant 0036). Moreover, inadequate assessment practices in schools may fail to recognize the unique abilities of gifted students (Participant 0019). To address these issues, there is a need for student-centered teaching methods that actively engage gifted students and appropriate assessments that challenge and recognize their talents. By creating dynamic and stimulating learning environments, schools can better support the intellectual growth and development of gifted students.

Reductionist Way of Understanding the Educational Context

A reductionist way of understanding the educational context can also refer to the omission of important co-determinants of a multi-causal situation (Sayer, 2010:34), or the choice of an inappropriate perspective or conceptual framework. Participant (0030) illustrated:

> "Gifted students always cause disturbances for normal learners".

Another participant (0033) revealed:

> "Discipline because students who are gifted do not listen to their educators simply because most think they know better".

This section discussion highlights the potential limitations of a reductionist approach in understanding the educational context, which may overlook important co-determinants and perspectives. Participant (0030) suggests that gifted students can disrupt the learning environment for other students, while Participant (0033) emphasizes the challenge of discipline when gifted students exhibit independent

thinking. These observations underscore the need for a more comprehensive and inclusive perspective that considers the diverse factors and dynamics at play in the educational setting.

By acknowledging the complex nature of education and adopting appropriate frameworks, educators can better address the unique needs and characteristics of gifted students. It is crucial to create a supportive and inclusive learning environment that fosters understanding, discipline, and cooperation among all students. By doing so, the educational experience can be enriched for both gifted students and their peers, promoting positive interactions and optimal learning outcomes for all.

Lack of Creativity and Innovation during Classes

Insufficient creativity and innovation during classes can limit the engagement and intellectual growth of gifted students.

Participant (0015) showed:

> "The unavailability of resources at schools impacts negatively on learners. Students usually learn best when they touch and use some equipment".

Another participant (0033) showed:

> "Lack of resources to equip the learner to put his or her abilities or strength to his or her full potential. Example computer relevant study material".

The study identified barriers to the creativity of gifted students, including repetitive teaching, uniformity of knowledge, unprepared teachers, traditional teaching methods, limited educational context, and lack of creativity during classes. Participants emphasized the need for more engaging and challenging learning experiences, differentiation in teaching, and teacher training to address these barriers and support the development of gifted students' creativity.

The Barriers to the Identification of Gifted Students

The barriers to identifying gifted students were discussed concerning several subcategories. These subcategories included the traditional view of education, lack of challenges in the school environment, difficulties in recognizing high abilities, students with special needs, stereotypical expectations, delays in development, incomplete information, and unfamiliarity with enrichment methods.

The Traditional View of Education Centered on the Transmission of Information and not on Reflection on Knowledge. The traditional approach to education focuses primarily on the transmission of information rather than promoting critical thinking and reflection. It suggests that there is a need to shift the educational paradigm towards fostering a deeper understanding and encouraging students to engage in meaningful reflection and analysis of knowledge.

Participant (0031) showed:

"The mixture of students in one class. These combinations of students are a barrier since a teacher will focus on weak students and neglect the smart ones".

Another participant (0037) revealed:

"Too much emphasis on meeting minimum basic standard".

The traditional approach to education prioritizes information transmission over critical thinking and reflection. This highlights the need to shift the ducational paradigm towards fostering a deeper understanding and encouraging students to engage in meaningful analysis and reflection of knowledge.

However, certain barriers hinder this transition. One such barrier is the mixture of students in a single class, which can lead to teachers focusing primarily on weaker students, neglecting the needs of gifted students. Additionally, there is an excessive emphasis on meeting minimum basic standards, which may limit opportunities for intellectual growth and exploration. To overcome these challenges, it is crucial to promote differentiated instruction that addresses the unique needs of all students, including gifted learners. Encouraging critical thinking, and reflection, and providing opportunities for intellectual challenge will help create a more inclusive and enriching learning environment. By shifting the focus from mere information transmission to fostering a deeper understanding, education can better prepare students for lifelong learning and success.

Disrespect for Differences and Uniformity of Knowledge

"Disrespect of differences and uniformity of knowledge" refers to disregarding students' unique qualities and promoting a standardized approach to education. This hinders the development of gifted students and limits their individualized learning experiences. Embracing diversity and personalized education is crucial to nurturing the talents and potential of gifted students.
Participant (0037) uncovered:

"Teachers must try to make sure that everyone has the same knowledge".

Another participant (0033) suggested:

"Lack of services mandates in many schools to support services for gifted learners".

Based on the information provided, it can be concluded that the issue of "disrespect of differences and uniformity of knowledge" in education refers to disregarding students' unique qualities and promoting a standardized approach to education. This approach hinders the development of gifted students and limits their individualized learning experiences. The statement made by Participant 0037 about teachers trying to ensure everyone has the same knowledge indicates a focus on uniformity rather than recognizing and nurturing individual differences. Additionally, participant 0033 pointed out the lack of support services for gifted learners in many schools. This further reinforces the notion that the educational

system fails to address the needs of gifted students, as they often require specialized services and tailored approaches to education. In conclusion, embracing diversity and personalized education is crucial to effectively nurture the talents and potential of gifted students. It is important to recognize and respect their unique qualities, provide appropriate support services, and avoid a one-size-fits-all approach to education. By doing so, we can create an inclusive and enriching learning environment that enables gifted students to thrive.

Lack of Sufficient Challenges in the School Environment

Insufficient challenges in the school environment hinder the intellectual growth of gifted students by depriving them of stimulating and engaging learning opportunities that match their abilities and interests.

Participant (0040) showed:

> "Sometimes the work given to them does not benefit them if it is of average level".

Another participant (0032) revealed:

> "Not given enough activities. Keeping them in a corner and concentrating on others".

The lack of challenging opportunities in the school environment hinders the intellectual growth of gifted students. Participant (0040) and Participant (0032) both highlight this issue, emphasizing that the average-level work assigned to them does not benefit them and leaves them without stimulating activities. By neglecting to provide appropriate challenges that match their abilities and interests, these students are unable to reach their full potential and excel academically. Educational institutions must recognize and address the unique needs of gifted students, providing them with stimulating and engaging learning opportunities to foster their intellectual growth. This way, we can cultivate a generation of capable individuals who can make meaningful contributions to society.

The Difficulty of Recognition among Educators about the High Abilities of their Students

Teachers often struggle to recognize and acknowledge the exceptional abilities of their students, which can hinder the appropriate support and opportunities needed for gifted students to thrive.

Participant (00) showed:

> "Gifted learners may be sorely neglected unless all teachers are aware of their needs and have skills to plan for them effectively".

Another participant (0033) designated:

> "Evaluating their ability among the same group".

The failure of teachers to recognize and acknowledge the exceptional abilities of their students poses a significant obstacle to providing the necessary support and opportunities for gifted students to flourish. Participant (00) emphasizes the importance of teachers being aware of the unique needs of gifted learners and possessing the skills to effectively plan for their educational requirements. Additionally, Participant (0033) points out the importance of evaluating the abilities of gifted students within an appropriate context, rather than comparing them to their peers with average abilities.

By addressing these challenges and enhancing teacher awareness and competency, we can better cater to the needs of gifted students, ensuring they receive the appropriate support and opportunities to fully develop their exceptional talents.

Incomplete Information about Students' Abilities

Lack of complete information about students' abilities refers to educators not having a comprehensive understanding of students' full range of capabilities. This can lead to underestimating or overlooking their talents and potential, including gifted students. Gathering accurate information through assessments and observations is essential to better understand students' abilities and provide appropriate support.

Participant (0047) showed:

> "Evaluating their ability among the same group".

Another participant (0033) was exposed:

> "Since teachers are not trained at the college level to deal with gifted students, gifted up being ignored".

Participants did not mention specific challenges faced by gifted students with special needs or topics such as stereotypical expectations, delays in development, incomplete information about abilities, and educators' unfamiliarity with enrichment strategies. These areas were not discussed during the study.

The Barriers to Inclusion

Barriers to the inclusion of gifted students were discussed in two categories: obstacles to effective learning and societal/environmental barriers. These categories encompass internal challenges, such as insufficient curriculum challenges, and external factors, such as a lack of awareness among teachers. Addressing these barriers requires tailored challenges, teacher training, and creating an inclusive educational environment. By overcoming these barriers, we can empower gifted students to reach their full potential and contribute meaningfully to society.

> Anything that stands in the way of a child being able to learn effectively.

"Anything that stands in the way of a child being able to learn effectively" refers to any factors or circumstances that hinder or impede a child's ability to engage in successful and productive learning experiences.

Participant (0045) indicated:

> "Lack of services mandates in many schools to support services for gifted learners".

Another participant (0042) showed:

> "Appropriate modification of the curriculum as many educators are out of their comfort zone to modify curriculum".

Barriers to effective learning include learning difficulties, lack of support, ineffective teaching methods, and the need for curriculum modifications. Participants noted the lack of mandated services for gifted learners (0045) and educators' unfamiliarity with adapting the curriculum (0042).

Regarding Societal/environmental Barriers

Societal/environmental barriers are external factors that hinder learning, including cultural norms, limited resources, discrimination, and inadequate policies. Overcoming these barriers requires promoting inclusive education.
Participant (0043) revealed:

> "The department focuses more on the policy, and they delay learner abilities and also the educators e.g., teaching math in Setswana rather than in English".

Another participant (0033) elaborated:

> "The environment where the learner is living to find that there are no proper facilities to cater to his or her potential because of circumstances which are beyond control e.g., poor family".

The study explored barriers to including gifted students, including obstacles to effective learning and societal/environmental factors. Participants identified challenges such as a lack of support services and difficulties in modifying the curriculum. Societal/environmental barriers, such as cultural norms and limited resources, were also discussed. Addressing these barriers is essential for creating an inclusive educational environment for gifted students.

Dealing with the Barriers to Gifted Education in the Classroom

The second aim of this research is to explore effective strategies for addressing barriers to gifted education in the classroom. Gifted education faces numerous obstacles that hinder its success, requiring the identification of suitable approaches to overcome these challenges. However, the existing discussion on this

topic has been limited, with few teachers offering insights, reflecting a narrow perspective

Participant (0014) indicated:

"Implementation of special programs to cater for these learners due to poor pre-service preparation/training of teachers".

Participant (0031) indicated:

"Time allocated to learning not enough time is given to our learners".

Participant (0005) indicated:

"Insufficient resources to stretch unable learner beyond the curriculum".

Participant (0041) indicated:

"Overcrowding where gifted learners are mixed with slow learners. Teaching is not effective, and the classroom is not conducive".

Participant (0042) indicated:

"Appropriate modification of the curriculum as many educators are out of their comfort zone to modify curriculum".

Participant (0004) indicated:

"Lack of resources. e.g., technology in schools/wifi/textbooks."

Participant (0006) indicated:

"Problem of diversity and the language of teaching and learning"

Participant (0039) indicated:

"Want special attention and be given 1st priority in everything they do".

The study's findings highlight the importance of addressing barriers to gifted education in the classroom. Participants identified key obstacles, including poor pre-service training for teachers, inadequate learning time, limited resources, overcrowding, curriculum challenges, and issues related to diversity and language. These insights underscore the need for effective strategies to overcome these barriers and create a conducive learning environment for gifted students.

The study emphasizes the significance of equipping teachers with the necessary knowledge and strategies to address these obstacles. By addressing the identified barriers, teachers can better support the unique needs of gifted students and maximize their potential. The findings also stress the need for specialized

programs, appropriate curriculum modifications, and the allocation of sufficient resources to cater to gifted learners effectively.

Additionally, the study recognizes the importance of broadening the discussion and engaging a wider range of stakeholders, including policymakers and administrators, to develop comprehensive solutions. By doing so, educational systems can create inclusive environments that prioritize the educational needs of gifted students.

Overall, this research highlights the pressing need to address barriers in gifted education and aims to empower teachers with the tools to overcome these challenges effectively. By promoting awareness and implementing evidence-based strategies, the study seeks to improve educational outcomes for gifted students and ensure their educational success.

Discussion

This study investigates the perceptions of teachers regarding the barriers to gifted education, with a specific focus on the areas of creativity, identification, and inclusion of gifted students. Through a questionnaire, teachers provided their insights on the challenges they face in these domains. Recognizing and understanding the barriers to creativity, identification, and inclusion is paramount for the improvement of gifted education programs and practices.

The teachers' responses were coded into three categories: barriers to creativity, barriers to identification, and barriers to inclusion. Each category was further divided into subcategories based on the analysis of the teachers' questionnaires.

Regarding barriers to creativity, the study identified six subcategories: repetitive teaching, uniformity of knowledge, unprepared teachers, traditional teaching methods, limited educational context, and lack of creativity during classes. The teachers highlighted the negative impact of repetitive teaching practices on gifted students' holistic development and the need for instructional approaches that foster critical thinking and creativity. They emphasized the importance of addressing these barriers to unlock the potential of gifted students and create an inclusive and stimulating learning environment.

Barriers to identification were discussed about various subcategories, including the traditional view of education, lack of challenges in the school environment, difficulties in recognizing high abilities, students with special needs, stereotypical expectations, delays in development, incomplete information, and unfamiliarity with enrichment methods. The teachers acknowledged the need to shift the educational paradigm towards promoting critical thinking and reflection, recognizing students' unique qualities, providing appropriate challenges, and gathering accurate information about students' abilities to better support gifted students.

The barriers to inclusion were categorized into obstacles to effective learning and societal/environmental barriers. Obstacles to effective learning included learning difficulties, lack of support, ineffective teaching methods, and the need for curriculum modifications. Societal/environmental barriers encompassed

cultural norms, limited resources, discrimination, and inadequate policies. Overcoming these barriers requires promoting inclusive education and addressing the specific challenges faced by gifted students.

The discussion also touched upon effective strategies for addressing these barriers in the classroom. However, the discussion in this area was limited, indicating a narrow perspective among the teachers. Some of the strategies mentioned included implementing special programs for gifted learners, providing sufficient learning time, ensuring adequate resources, and creating conducive classroom environments.

This discussion sheds light on the barriers faced by mathematics teachers in nurturing the creativity, identification, and inclusion of gifted students. It emphasizes the importance of addressing these barriers to create an inclusive and stimulating learning environment that supports the holistic development of gifted students' talents and abilities. The discussion also highlights the need for further exploration of effective strategies to overcome these barriers and enhance gifted education in the classroom.

Conclusion

This study explores teachers' perspectives on barriers to effective gifted education. The findings indicate a lack of knowledge and understanding among teachers, emphasizing the need for improved training and professional development in gifted education. Enhancing teachers' awareness and understanding of gifted students' needs, especially in mathematics education, can help overcome these barriers. The study underscores the importance of integrating gifted education into teacher training programs and suggests further research to identify effective strategies for supporting gifted students in regular classrooms. However, gifted students are still required to meet the content standards for their grades. Therefore, curriculum changes should supplement and not replace grade-level content. Furthermore, the Gifted and Talented Education (GATE) policy for schools should be developed to adapt education to diverse needs, focusing on teaching and learning mathematics. International cooperation and international conferences in gifted education are and will continue to be important for experts and countries to reach some common understanding, share good practices, and allow for a more consistent international comparison. The findings also hold relevance for other developing countries facing similar challenges in gifted education. By contributing to the existing literature, this study highlights the significance of addressing these barriers to promote the academic and personal growth of gifted students.

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Active Teaching-learning Methodologies in Higher Education: A Project with the Community

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Active teaching-learning methodologies are a reality at the School of Education and Social Sciences of the Polytechnic of Leiria (Portugal), namely through the articulation with institutions of the community. The qualitative research presented in this article intends to analyse the perception of the students who are attending the Higher Professional Technical Course in Sociocultural and Sports Intervention, specifically concerning the importance of these methodologies in a project carried out with the District Hospital of Leiria. During the development of this partnership, 42 students were challenged to collaborate throughout the training process and, at the end, they were asked to write a report, which was considered the data collection instrument. These individual reports include descriptions, analyses and reflections that were processed through content analysis, using categories, and adopting an exploratory approach. The results showed that the students considered that this methodology of teaching-learning allows them to acquire know-what, know-why and know-how competencies. Moreover, they admit that the articulation with external institutions contributes to a better acquisition and mobilisation of practical knowledge that they will be able to apply to different situations, spaces and times in their future professional lives.

Keywords: higher education, active teaching-learning methodologies, pedagogic innovation, community intervention, transdisciplinarity

Introduction

This article presents a partnership project that was developed in the academic year 2021/2022, with the students of the 1st and 2nd years of the Higher Professional Technical Course in Sociocultural and Sports Intervention of the School of Education and Social Sciences of the Polytechnic Institute of Leiria and the Santo André Hospital - District Hospital of Leiria, which are institutions located in the centre of mainland Portugal. During two semesters, the students (20 first-year students and 22 second-year students) were challenged to devise and develop a set of sociocultural and sports intervention strategies in the hospital. More specifically, they were required to plan and carry out sociocultural animation activities with the professionals and the patients from all the services, with the aim of enhancing new processes of humanisation and (re)building relationships within the hospital unit. It is important to clarify that this partnership has as its main interlocutor the Humanization Commission of the District Hospital of Leiria, which aims to make the hospital context more supportive and courteous through the development of activities related to the promotion of well-being for users, families and professionals.

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This work was integrated into the curricular units of Fundamentals of Animation (1st year) and Management of Community Intervention Projects (2nd year). Both curricular units took place in the 1st semester of the academic year, thus, during the same period. Their learning objectives are the theoretical acquisition of concepts related to sociocultural and sports intervention and their subsequent practical application, through the construction and implementation of actions and projects. In general terms, the purpose of the curricular unit that takes place in the 1st year is to bring the knowledge and practice of sociocultural and sports intervention closer to the community. In the 2nd year, the aim is to deepen the knowledge acquired concerning professional skills in the various types of institutions/organizations, contexts and equipment. This includes the use of techniques and tools that are most suitable for the planning, development and evaluation of sociocultural and sports intervention projects.

In operational terms, the work was developed as follows: students organized themselves into groups of three/four and chose the Care Unit (within the District Hospital of Leiria) in which they intended to work, but they could also choose to work in more than one Unit. In the work presented here, the following units were chosen: Outpatient Paediatrics, Paediatrics, Palliative Care, Day Hospital, Oncology, Child and Adolescent Psychiatry and Psychiatry and Mental Health. Students could also choose the recipients of their projects, that is, they could design and implement courses of action for the users of the services, for their relatives or for the professionals who worked in these services. They also had the possibility to develop projects which were more comprehensive and integrated various groups of recipients. By enabling students to choose the unit(s) and recipients of their projects, they got a motivational boost and became involved and responsible for their own learning process (Costa, 2016; Pelletier, et al., 2023; Kukulska-Hulme et al., 2022).

The process began in a classroom context: the teacher presented, analysed and discussed the concepts that constituted the theoretical and conceptual framework upon which the course of action to be developed was based. During this phase, some professionals of the hospital were invited to be present to provide real information "from the field", which complemented and illustrated the concepts that were being discussed. After this initial phase of acquiring the theoretical concepts and knowledge of the Units' main characteristics and their respective users and professionals, the students started making the diagnoses, even if at a distance. In the second phase, students went to the hospital and to the services they had chosen to develop their projects, seeking to gain a deeper understanding of the dynamics, the perceived needs and the potential of each of these contexts. This diagnostic interpretation involved organizing the necessary data to define intervention strategies, mobilizing knowledge, which linked theory to practice (OEDC, 2018; Esteban-Yago et al., 2023). After completing this phase of diagnosis and understanding the reality, students began the planning phase, establishing intervention priorities, work hypotheses and course of action strategies. This resulted in the design of sociocultural and sports activities that enhanced the humanization of interpersonal relationships. Also at this phase, the project's scheduling, method of implementation and evaluation were organized. The planning phase primarily took place in the classroom, where the teacher acted as a knowledge and learning mediator (Alam & Islam, 2022; Taye & Alduais, 2022; Sousa

et al., 2021), supporting students in mobilizing theoretical knowledge and applying the practical knowledge acquired in the hospital.

The next phase, the implementation and execution of the activities, followed the previously discussed and validated schedule with the hospital and the units where the projects took place. Each group of students had to develop at least three structured sessions of activities, each lasting a minimum of two hours. Thus, projects with different activities, involving different recipients, issues, needs and different age groups were developed, but all with the same premise: to foster humanization processes. Finally, there was the evaluation phase. Although the evaluation was carried out throughout the entire project, this phase had a special focus at this point, when students analysed and evaluated the entire process that had been developed and the results they had obtained, culminating in an individual evaluation report.

This was the basis for creating an exploratory study, which sought to understand the students' perceptions regarding the use of these types of participatory teaching-learning methodologies.

Regarding the structure of the work, and after reflecting on the importance of using active teaching-learning methodologies in the first part, the methodology used as well as the research question and the objectives were also contextualised in the next part. In the third section, the results were presented and discussed to reach the conclusions expressed in the last part of the article.

Literature Review

Innovative Teaching-learning Methods Involving the Community

Today's society is characterised by the progressive modification and expansion of the boundaries of education and educational systems (Esteban-Yago et al., 2023; Kukulska-Hulme et al., 2022; Morin, 2010). Amid the 21st century, teaching, particularly at the higher education level, requires another type of approach, which is more focused on understanding and acting in the complexity of modern times (Almeida et al., 2022; Taye & Alduais, 2022), since "contemporaneity is not compatible with teaching in which we work with abstract and decontextualized activities and in which mechanical, repetitive skills are developed, easily executed by machines" (Xavier, 2015, p. 33). Strictly speaking, today, the challenge goes beyond that: the aim is to have holistic-based teaching, in terms of experiences and knowledge, which integrates the contents and the curriculum in an interdisciplinary way (Jensen et al., 2019; Alam & Islam, 2022).

In this sense, the path to follow is one of using active teaching-learning methodologies, in an approach that proposes new challenges to students, enabling them to take on the role of subjects in the construction of knowledge (Kukulska-Hulme et al., 2022; Morin, 2010). Therefore, the structuring axis is the preparation of technicians and professionals, but at the same time, the training of citizens with the ability to interact with themselves, with others and with the world around them (Esteban-Yago et al., 2023; Gomez, 2010; Manikandakumar & Sridevi, 2023).

From this perspective, educational institutions work in a three-dimensional logic, that is, they are concerned with the development of methodologies that have

repercussions on individual civic attitudes, interpersonal relationships and students' professional competencies (Kukulska-Hulme et al., 2022; Sousa et al., 2021).

In light of the above, the vast possibilities that can emerge from the connection between the educational institution and society are evident, with explicit effects that one has on the other. In this close relationship with society, Higher Education Institutions (HEIs) are able to develop students' competencies in terms of learning to know and learning to learn, enabling them to acquire technical skills and specific competencies in the professional area in which they are training, by integrating new knowledge, new research modalities, and establishing a connection between theory and practice (Manikandakumar & Sridevi, 2023; Santos et al., 2016). In this relationship, students are challenged to practice and test ideas, where the theoretical component emerges as a way to understand and improve the practice (Alves & Teo, 2020; Esteban- Yago et al., 2023; Kukulska-Hulme et al., 2022). However, the competencies in terms of learning to be and learning to live together are not neglected, in the logic of training democratic, participatory and humanistic citizens (Taye & Alduais, 2022; Frank, 2023), especially in a time of increasing social and cultural diversity: "students are expected to be able to act autonomously, in order to build their own criteria for feeling and acting, strengthening their individuality with freedom and responsibility" (Xavier, 2015, p. 31).

In this sense, the active teaching-learning methodologies developed in collaboration with institutions in the community surrounding the HEIs emerge as useful tools for training professionals (OECD, 2018). In the specific case of the study presented in this paper, active teaching-learning methodologies were based on community development and students were challenged to carry out community intervention projects. These projects were designed for and implemented in specific communities, seeking to address problems, promote positive change, and improve the quality of life of their members. These projects were usually developed in collaboration with community members, taking into account their needs, resources, and capabilities. The community intervention projects developed as part of this study involved the implementation of socio-educational and cultural activities and had the aim of empowering the community to solve its problems and promote a healthier, fairer and more sustainable environment for its members.

Although there is a wide array of pedagogical innovation strategies (Kukulska-Hulme et al., 2022), this study essentially resorted to dual learning scenarios. This strategy advocated the creation of learning scenarios based on the link with the labour market. Thus, through the creation of hybrid learning scenarios, the classroom aligned itself with the labour market, adopting and implementing problem-solving pedagogies, cases, and real situations, which required the development of critical thinking and collaboration of various individuals, in different domains of knowledge.

Active pedagogies enable students to engage in a more meaningful way, providing them with the opportunity to intervene, reflect and take a stand on the contents that are being worked on, assuming a central role in the teaching-learning process (Almeida et al., 2022; Taye & Alduais, 2022). This pedagogical strategy favours more personalized learning, so students are more motivated and committed.

The use of the dual learning scenarios strategy allows for the active and dynamic application of knowledge where, together with the labour market entities, students

develop critical analysis, the ability to question, and collaborative work. This strategy of pedagogical innovation is especially important in the courses that train the future professionals who will work in the area of sociocultural intervention, as they enable students to become immersed in real contexts and engage in personalized work that makes use of tools that best suit their characteristics (Costa, 2016; Manikandakumar & Sridevi, 2023). In fact, in courses where the job opportunities are very extensive concerning the areas, contexts and target audiences of intervention, the ability to develop activities and courses of action in various domains throughout the course, allows for a more informed choice in terms of professional practice and specialization.

In the work developed with external institutions, students are invited to draw upon different knowledge, both scientific and humanistic, using various methodologies and tools, with different audiences and in different fields of action. Given that they are offered opportunities to learn and experiment with different strategies in various areas, students are encouraged to develop new ideas and solutions, in an imaginative and innovative way, as a result of the interaction with others or personal reflection, and apply them to different contexts and learning areas, in a logic of non-abstract conception and experimentation (Pelletier, et al., 2023; Kukulska-Hulme et al., 2022).

By accomplishing this purpose, the teaching-learning methodologies that are put into practice in the work developed with community institutions provide for learning and acquisition of various competencies, where students express and use multiple skills in the development of essential tools for their future profession (Manikandakumar & Sridevi, 2023). Therefore, it is essential to systematically and intentionally promote activities, inside and outside the classroom, that allow students to make choices, confront different points of view, solve problems and make decisions, applying the contents covered in the Curricular Units (Sousa et al., 2021).

This paradigm, in contrast to the approaches of previous centuries, values the association between experience and knowledge, where knowledge is built through action and the reflection on action, through a logic in which "school learning must be related to living in society because the most meaningful and lasting learning is the one that acquires meaning in its relationship with the world" (Xavier, 2015, p. 34). From this point of view, education is not separate from community life, but rather it is a part of it, requiring collaborative work with civil society (Taye & Alduais, 2022). Thus, the promotion of solutions of complementarity and the creation of synergies with community institutions for social intervention are valued, enhancing real experiences of participation, as well as application and mobilisation of knowledge.

Therefore, it is a matter of encouraging "learning through practice", which is an aspect of paramount importance in an area that requires the acquisition of practical competencies and the concrete experience of social and political life, as is the case with social intervention (Kukulska-Hulme et al., 2022; Sousa et al., 2021). Thus, the training of professionals should start from the assumption that it is a global process, which cannot be limited to formal teaching in the classroom, but should rather prioritise collaborations with external groups or organisations, creating the right partnerships and providing the best opportunities for students to deepen scientific and technical competencies (Manikandakumar & Sridevi, 2023).

Methodology

The methodology of a research study must be appropriate to the object of study and the objectives to be achieved. The researcher should choose the most suitable approach and tools, ensuring their feasibility and validity (Guerra, 2006). The main issue addressed in this study was the understanding of the students' social perceptions (Clark & Creswell, 2015) regarding the use of active teaching-learning methodologies, in a logic of pedagogical innovation associated with community intervention.

Given the above, a qualitative paradigm was chosen, since the aim was to gain a deeper understanding of an innovative pedagogical experience. It was considered appropriate to adopt an exploratory typology, as it could serve as the basis for future research of a similar nature. Hence, based on an inductive, holistic and ideographic approach (Serrano, 2004), the aim was to get to know the real dynamics of the existing processes, to then propose intervention strategies within the scope of community intervention.

The research presented here was based on the community intervention projects developed by the students in the 1st and 2nd years of the Higher Professional Technical Course in Sociocultural and Sports Intervention of the School of Education and Social Sciences of the Polytechnic of Leiria (Portugal), in the various services of the District Hospital of Leiria. These projects were integrated into several curricular units of the course and their objective was to work on specific contents of conception, implementation and evaluation of strategies and activities in sociocultural and sports intervention, within the community. Against the backdrop of initiatives linked to *World Physical Activity Day* and *International Family Day*, the students, organized into groups, carried out activities in places such as the outpatient clinic, the paediatric ward, the diabetes clinic, and staff offices, among others. As an example of these activities, coordination and concentration games were played with the children waiting in the paediatric ward; videos were made using 3D animation, which were shown in the paediatric ward so that the children could learn about the benefits of physical activity; physical activity challenges were organized for employees and calendars with daily exercise cycles were distributed so that they could do physical activity even in the workplace.

As for *International Family Day*, various sociocultural and sporting activities were promoted specifically for the hospital's employees, who were allowed to bring their children to work on this day. These activities, which were mainly intended to promote the relationship between parents and children, were organized in the form of a gymkhana/walk and were held on a playing field created for the purpose. Among the activities, we can highlight family sports: the Family Fun Trail, where there were various obstacles to overcome together; Competition games; Mime games and Guess what I drew?; Colourful bowling; Twister; Family Memories, in which stories were shared, and in some way, there was an attempt to eternalize these through a drawing. We reiterate that all the sociocultural and sporting activities aimed to strengthen family relationships.

Cognitive, sensory and motor development activities were also carried out in the Psychiatry Unit - Inpatient Unit for Diseases and Prolonged Evolution (UIDEP), namely for users with psychic, mental or cognitive disorders, with determined or undetermined causes. These activities included sharing emotions, real-life stories, and

a games circuit with a creative recreation of existing games, among others. By applying these projects in a real context, the idea was to give a motivational impulse to students, getting them involved and making them responsible for their own learning process.

Therefore, and in light of the above, the objective was to understand the students' perceptions regarding the use of this type of methodology, as reflected in the following research question: what are the contributions of active teaching-learning methodologies in the training process, according to the students? In order to address this question, the following research objectives were set out: a) To identify the competencies that the use of this methodology allows students to develop; b) To understand the importance given by the students to the collaboration with the community within their training process.

The participants in this study were 42 students, consisting of 20 female and 22 male students, aged between 18 and 23. All students participated in the intervention projects which were developed at the partner institution - the District Hospital of Leiria, and in the end, they completed individual reflective reports, which served as the data collection tool for this research.

The reports had pre-defined structures and contents, which were developed around topics related to the process developed throughout the semester, directing the students' reflections according to the objectives identified above. In these reports, the participants described, analysed, and reflected upon the entire process they experienced. The topics contained in the reports served as the basis for further analysis, leading to themes and categories. So, the data were processed and analysed through content analysis, using categories and subcategories (Bardin, 2013; Kuckartz & Rädiker, 2023), which are presented in Table 1, in order of frequency.

Table 1. Thematic Analysis Table

Theme	**Category**	**Subcategory**
Acquired competencies	Learning to do	Apply theoretical concepts
		Create appropriate intervention strategies
		Operate in the training area
		Deal with the unexpected
	Learning to be	Autonomy
		Self-esteem
	Learning to live together	Work with peers
		Relate to the target audience
Collaboration with the community	Immersion in a real context	Non-abstract content conception
		Collaborative work
		Multi-referential learning spaces
		Differentiated models
		Mutual gains

Source: own authorship.

Based on the data systematised in the table above, in the next phase we address the set objectives by incorporating the recorded units of the subjects'

speeches, which are presented in a coded form (with an "S." for student and a number) in order to maintain the anonymity of the participants.

Results and Discussion

By combining the scientific literature with the results of the content analysis of the participants' individual reflective reports, we were able to address the first objective of the research: to identify the competencies that the use of the methodology enabled students to develop.

Based on the results obtained, according to the students' opinions, this teaching-learning methodology allowed students to acquire competencies in learning to do, learning to be and learning to live together. In terms of learning to do, the participants in this study first highlighted the possibility of applying theoretical concepts covered in various curricular units of the course's study plan (Esteban-Yago et al., 2023; Santos et al., 2016). In fact, according to the subjects, this type of methodology offered a stronger connection to the real world as it allowed them to practice (Almeida et al., 2022; Alves & Teo, 2020; Kukulska-Hulme et al., 2022) and, therefore, acquire deeper knowledge: "I found it very interesting to be able to do activities in the field that I had only known theoretically and thus learn much more" (Student - S.- 10).

Another aspect highlighted by the participants was the possibility of being able to create intervention strategies which were appropriate to the situations and audiences. The students learned to apply their competencies in a variety of situations (Costa, 2016; Manikandakumar & Sridevi, 2023), meeting the needs and potentialities that they perceived to be truly important and significant: "devising and implementing intervention strategies is a very complex process because we have to consider many variables. Many of these would not have even crossed our minds if we had not gone out into the field" (S. 20).

The students also valued the fact that this type of methodology provided them with the opportunity to experience the profession they were training for (Alves & Teo, 2020; Kukulska-Hulme et al., 2022). In essence, these methodologies enabled students to be in contact with tasks similar to those they will have to perform in their future profession, allowing them to experience what the reality will be like after their training years: "Carrying out this project allowed me to experience what I will be doing as a professional and that was very good" (S. 21).

Finally, in the learning to do category, students mentioned the ability to deal with the unexpected. According to the participants, this type of methodology helped them to develop improvisational skills (Costa, 2016; Esteban-Yago et al., 2023; Sousa et al., 2021), which meant being able to observe and analyse the social reality, adjust actions based on that analysis and adapt them to practice as much as possible: "I believe that the most significant learning outcome is the ability to improvise, which means being in the context where something does not go as planned and having to quickly adapt activities or strategies" (S.19).

Regarding the category of learning to be, the participants first highlighted the autonomy that methodologies of this nature provided (Gomez, 2010; Manikandakumar & Sridevi, 2023; Xavier, 2015). In fact, throughout the process,

the students' ability to take on an active role in the construction, implementation and evaluation of the entire process was emphasised: "I realized that the process was moving at our own pace, that is, the more we participated and got involved, the more issues were resolved" (S. 7).

Another subcategory that stood out was personal appreciation. In fact, the study subjects mentioned that, throughout the process, they felt increasingly valued and that their insecurities decreased as they progressed with the implementation of the activities and received feedback from professionals of the institution as well as teachers (Costa, 2016; Kukulska-Hulme et al., 2022; Morin, 2010). This recognition led to an increase in self-esteem and well-being, both within themselves and towards others: "Engaging in these activities made me set aside my insecurities and learn to value myself more. After all, I can do it too" (S. 19).

The last category within the theme of acquired competencies was related to learning to live together. In this category, participants highlighted the development of the ability to work with peers (Gomez, 2010; Manikandakumar & Sridevi, 2023; Sousa et al., 2021). Since the students' projects had to be done in groups, it promoted collaborative work and the management of shared knowledge, competencies and emotions: "Working with other members of the group was a highly enriching challenge, where each one gave their best and we tried to overcome each other's shortcomings" (S.17).

The development of competencies related to interpersonal relationships, namely with the beneficiaries of the projects, was an area that was highly valued by students. According to the results obtained, participants recognized the importance of these types of methodologies in fostering productive relationships with the target audience of the institutions (Gomez, 2010; Kukulska-Hulme et al., 2022), overcoming insecurities and fears, and strengthening communication and empathy skills: "When I started doing the activities, I was very insecure, but I developed the ability to communicate with people" (S.11).

Regarding the second objective – understanding the importance attributed by students to community collaboration within the scope of their educational process – the data revealed that the participants valued the opportunity for immersion in a real context.

According to the participants, carrying out projects in external institutions allowed for a non-abstract understanding of the content, which represented a different and more fruitful approach to how educational content is addressed (Alves & Teo, 2020; Manikandakumar & Sridevi, 2023; Xavier, 2015). This was because the content was tested and analysed regarding the experiences in a real context: "Like this, we learned the various subjects in a way that made more sense to us because we applied the theory and then reflected on the practice" (S. 12).

Another aspect highlighted by the data was collaborative work. According to the students, working in teams, both with their peers and with professionals from the hospital, allowed them to acquire essential knowledge and competencies (Costa, 2016; Kukulska-Hulme et al., 2022), especially in the field of social intervention: "I learned a lot from my colleagues and the hospital professionals. There was always a lot of sharing and joint learning" (S.16).

The data also revealed that another benefit that the students attributed to the collaboration with the community was the existence of diverse multi-referential learning spaces, materialising in the opportunity to develop competencies and knowledge in different situations, spaces, and times (Gomez, 2010; Xavier, 2015): "It was great to work on the educational content in different places and with various people" (S.2).

Within this category, the subjects also admitted that immersion in a real context allowed them to use differentiated pedagogical models in various curricular units, resulting in a more robust and consolidated acquisition and mobilization of content (Alves & Teo, 2020; Manikandakumar & Sridevi, 2023; Morin, 2010): "In this partnership with the hospital, the teacher was able to work on the content in conjunction with practice, and for us, it was very enriching" (S.17).

Lastly, the students emphasized the importance of their work in the institution. In essence, the participants perceived the existence of mutual benefits for both themselves and the institution that hosted their projects, as the focus was placed on creating common developmental processes (Santos et al., 2016), where the application of theoretical and scientific knowledge contributed to social innovation and to the empowerment of the institution. This promoted the enrichment of students, technicians and professionals, as well as the hospital's patients: "I realized that the professionals were not familiar with the activities we did. We have already left a kind of kit there so that in the future, they can develop these types of activities autonomously" (S.11).

The results of this study show that the use of active teaching-learning methodologies, when anchored in a joint effort with entities from the community to which the higher education institutions belong, enables students to learn a wide variety of things, both at a technical and professional level and at a human level. In fact, one of the great results of this project was the possibility of turning practices outside the classroom into more meaningful and empowering learning experiences for the participating students, with wide repercussions in terms of promoting their social and emotional skills. This widening of educational spaces has also contributed to the construction of diversified forms of interaction, enriching the educogeny in various contexts.

Conclusions

To think about education today implies taking into account the diverse contexts in which it is developed and consolidated. This concern becomes even more relevant when focusing on Higher Education and the training of professionals capable of mobilizing specific competencies in the scope of social relations and applying knowledge of intervention in different community action contexts. Starting from a pedagogical approach based on active teaching-learning methodologies, the students were challenged to implement sociocultural and sports intervention projects at the District Hospital of Leiria. This work of pedagogical innovation, which took place in two main spaces – the classroom and the hospital – was based on a relationship of mutual enrichment and a logic of applying

theoretical components outside the classroom and analysing practical aspects in an academic context (Alves & Teo, 2020; Costa, 2016; Gomez, 2010; Kukulska-Hulme et al., 2022).

Therefore, and considering the results obtained, we can state that the use of this type of methodology was perceived by the students as being an enriching experience when consolidating the educational contents and developing a wide range of competencies, both in terms of academic and professional training both at the level of personal and social development (Esteban-Yago et al., 2023; Manikandakumar & Sridevi, 2023; Sousa et al., 2021). Along the same line, students considered that the methodologies that promote immersion in real contexts were very important because they allowed for more robust and fruitful training, while also addressing the needs of partner institutions through the development of new techniques and different community intervention activities (Costa, 2016; Kukulska-Hulme et al., 2022). This social relevance of educational projects, in the search for pedagogical innovation solutions, contributes to a better education and academic training that is more in line with the new profiles of citizens and professionals (Xavier, 2015).

Despite the results achieved, it is possible to identify some limitations, such as the fact that the intervention was implemented with a restricted group of participants over a relatively short period. The continuity of the actions could have contributed to more consistent and lasting results. It is therefore felt that, in the future, it is important to create a working group specifically dedicated to developing community intervention projects that bring health professionals and academics together. On the one hand, science would be richer with the opportunity to get to know the real contexts and needs of the hospital environments in depth, which would boost studies and dynamics within the community. On the other hand, spaces dedicated to health promotion would also be fortified by including actions in their offer that would contribute, on a regular and systematic basis, to promoting the well-being of the people who use them.

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Effects of Age on Teachers' Self-Efficacy: Evidence from Secondary Schools

By Sylvester JO Odanga[*] & Peter JO Aloka[±]

The study investigated the effects of age on self-efficacy among teachers in secondary schools in Kenya. The concurrent triangulation design was adopted. A sample size of 327 teacher participants was obtained using both stratified and simple random sampling techniques. The Teacher Self-Efficacy Scale (TSES) was used to collect quantitative data. In addition, semi-structured interview was used to collect qualitative data. The reliability coefficient for the TSES was $\alpha = 0.996$. The Multivariate Analysis of Variance (MANOVA) was used to test the hypothesis. Qualitative data was analyzed using thematic analysis. The MANOVA results indicate that the effect of age on teachers' self-efficacy was not significant, Wilk's λ (6, 320) = 0.947, $p = 0.498$. Qualitative results reported a significant effect of age on teachers' self-efficacy in classroom management. The Kenyan Teachers' Service Commission should carry out periodical assessment of teachers' self-efficacy to identify teachers that are vulnerable to low self-efficacy.

Keywords: effects, age, self-efficacy, teachers, secondary schools, Kenya

Introduction

The study aimed to examine the effects of age on self-efficacy among teachers in secondary schools in Kenya. Self-efficacy is very important as an aspect of positive psychology because it assists teachers to develop internal coping mechanism to challenges and also provide them with best strategies of managing students in classrooms. Self-efficacy is defined as a person's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives (Bandura, 1994). However, Alnoor, Al Abrrow, Abdullah, and Abbas (2020) defined self-efficacy as an individual's appreciation of his or her ability to perform occupational challenges successfully by mobilizing knowledge resources and pathways to meet professional requirements. Subsequently, Cheng et al., (2020) defined self-efficacy as one's evaluation of his or her capability to perform professional tasks and the expectation of performing such professional behaviours successfully. Therefore, self-efficacy is the belief an individual has about himself or herself that the individual has the ability to successfully carry out an activity. Self-efficacy beliefs are very helpful as they determine both task performances among individuals. In addition, self-efficacy is associated with key motivational constructs such as causal attributions, self-concept, optimism, achievement goal orientation, academic help-seeking, anxiety, and value (Usher & Pajares, 2008). Self-efficacy is also connected to self-regulate

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learning, including students' decision to stay in school (Caprara, Fida, & Vecchione, 2008), and academic procrastination (Klassen, Krawchuk, & Rajani, 2008). According to Bandura (1997), people with low self-efficacy tend to doubt their capabilities and often avoid circumstances where they think they will fail. Self-efficacy and positive psychology both seek to evoke human strengths such as optimism, perseverance, and interpersonal skills (Seligman & Csikszentmihalyi, 2000).

Teachers' self-efficacy has been defined as teachers' beliefs in their ability to effectively handle their professional tasks, obligations, and challenges (Barni, Danioni, & Benevene, 2019). According to Skaalvik and Skaalvik (2016), teacher's self-efficacy is the teacher's personal belief that they possess the ability to perform professional tasks of the teaching-learning process with mastery. Teachers' self-efficacy is important because it affects teachers' instructional quality and student motivational beliefs because it is positively related to instructional quality, which in turn is positively related to student motivational beliefs (Achurra & Villardón, 2020). In addition, teachers' self-efficacy plays a key role in influencing important academic outcomes, such as students' achievement and motivation (Barni, Danioni, &d Benevene, 2019); and it also affects the levels of commitment, enthusiasm, persistence and innovativeness in teaching (Berg & Smith, 2016). Tschannen-Moran and Hoy (2001) identified three domains in the construct of teachers' self-efficacy, which are self-efficacy in instructional strategies, student engagement and classroom management. Instructional strategies are techniques teachers use to help learners become independent and strategic (Motsa, Bhebhe, & Nxumalo, 2019) while student engagement is the capacity of the teacher to organize and utilize resources such as time and institutional materials to induce optimal academic participation (De Villiers & Werner, 2018). However, classroom management refers to the actions teachers take to create an environment to achieve multiple learning goals for students by supporting and facilitating effective teaching and learning (Korpershoek et al., 2014).

Although, Künsting (2016), Smith (2016) and Ullah (2010) posited that it is expected of teachers to have high levels of self-efficacy, Odongo (2011) and Oginga, Muola, and Mwania (2014) reported that teachers' self-efficacy was low in Kisumu East Sub-County and Kisumu Municipality in Kenya. In addition, the low self-efficacy among teachers in Kisumu County in Kenya was evidenced by the statistic that 253 out of 1790 (14.1%) teachers had either resigned or sought transfers between 2014 and 2018 in Kisumu County. This was suggestive of low teachers' self-efficacy because Machin and Fogarty (2008) and Tsang, Sham, Law, Chan and Sze (2016) found intention to transfer, resignation and persistence in teaching on one hand and self-efficacy on the other hand, to be related. Very scanty literature was available on effects of age and teachers' self-efficacy in Kenya. Therefore, the study investigated the effects of age on teachers' self-efficacy in Kisumu County of Kenya.

Literature Review

This study was informed by Bandura's Social Cognitive Theory. The theory adopts an agentic perspective where people intentionally influence their functioning through self-directed goal tendency to achieve self-development (Bandura, 2005). Literature on age and self-efficacy among teachers exists. For example, in Turkey, Top, Acet, Kalkavan, and Ozturk (2016) showed that there were significant differences in personality variables, including self-efficacy, of teachers according to age groups. In addition, Gkolia, Dimitrios, and Koustelios (2016) study in Greece and other European countries indicated that teachers' age affect their self-efficacy factors. Moreover, Authier (2012) study in Canada revealed that the younger teachers had higher sense of teacher self-efficacy. Another study in USA by Bausch, Michel and Sonntag (2014) confirmed that there was a significant relationship between age and self-efficacy in favor of the aged.

Batool and Shah (2018) in USA indicated that there is a significant difference between the mean score of experienced teachers (M=11.24, SD=2.93) and the mean score of less experienced teachers (M=31.75, SD=1.61), i.e., $t = -20.51$, $p = 0.001$. In South Africa, Motshidisi (2013) study revealed that the teachers who were older and had many years of teaching experience had significantly higher teaching efficacy beliefs scores as compared to the younger teachers' or those with few years of teaching experiences. Similarly, Raath and Hay (2016) study is south Africa indicated that as the age of teachers increased, their self-efficacy level too increased in a linear relationship. However, Iran by Arbabisarjou, Zare, Shahrakipour, and Ghoreishinia (2016) revealed that the relationship between age and self-efficacy was not significant. Similarly, Schwartz (2010) in USA reported that a teacher's age was not predictive of teacher self-efficacy. Sharma and Rani (2014), study in India also found that university postgraduates' self-efficacy did not differ significantly by age groups, that is, both young and old post-graduates had similar levels of self-efficacy. Subsequently, Salami (2007) and Mensah and Lebbaeus (2013), study in Nigeria and Ghana indicated that age had no statistically significant influence on self-efficacy. This implied that there were no consistent differences in self-efficacy among teachers of different ages. Similarly, Hofman and Kilimo (2014) study in Tanzania showed that teachers' age did not relate significantly to teachers' self-efficacy towards inclusive education.

From the previous studies focused on teachers' self-efficacy and omitted the domains of teachers' self-efficacy. Moreover, methodological gaps in literature also arose because the previous studies employed either qualitative or quantitative approaches, with some studies using secondary data.

Research Hypothesis

The hypothesis of the study was stated as follows:

Ho: *Age does not influence teachers' self-efficacy and its domains*

Methods

Design

The concurrent triangulation mixed methods design was adopted. This mixed methods design involves a single study containing qualitative and quantitative data collection which is conducted at the same time. The purpose of this type of investigation was to validate the findings generated by each method through evidence produced by the other (Kroll & Neri, 2009).

Participants

A sample size of 327 teacher participants was obtained using both stratified and simple random sampling techniques. This ensured the representation of respondents with different characteristics from various sub-groups (Castillo, 2009). The selection criterion was teachers in public secondary schools employed by the Teachers Service Commission of Kenya.

Instruments

The Teacher Self-Efficacy Scale (TSES), a standardized questionnaire was used to collect quantitative data. The TSES was developed by Tschannen-Moran and Hoy (2001) to measure teachers' self-efficacy and its domains. The TSES consists of 24 items on a summated scale with eight items measuring each of the three domains of teacher efficacy such as student engagement, instructional strategies and classroom management. The questionnaire had a response format on a 5-point Likert scale. In addition, semi-structured interview was used to collect qualitative data, because of the focus and freedom it accords the researcher in data collection, gives rich data and captures inner feelings of respondents (McKenzie & Hannan, 2007). The interview question was stated as: *how do you view self-efficacy, that is your capability of performing your duties as a teacher*?. Two experts in Educational Psychology from a Kenyan university examined the Teacher Self-Efficacy Scale for face and content validities. Cronbach's reliability coefficient, alpha (α) was used to establish questionnaire internal reliability by testing how closely related the set of TSES items were (Johnson & Christensen, 2004).The reliability coefficients for the TSES questionnaire was $\alpha = 0.996$. This was considered a high reliability coefficient since $\alpha = 0.7$ and above is acceptable (Gliem & Gliem, 2003).

Procedure

Ethical clearance to conduct the study was obtained from the National Council for Science, Technology and Innovation in Kenya. Thereafter, researcher visited the selected secondary schools, met the principals, and informed them of the nature and purpose of the research. Finally, on the dates agreed, the researcher visited the concerned schools to collect data from the sampled teachers. The quantitative data was collected through self-report questionnaire that consisted of

two sections of demographic variables and Teacher Self-Efficacy Scale. The researcher administered the questionnaire personally to the respondents and waited as the respondents filled them. Each questionnaire took about 20 minutes to be completed by participants. In addition, 12 teachers were interviewed. This number of interviewees fell between the recommended 6 and 20 that was sample size for an interview in educational research (Mason, 2010). Each of the interview sessions lasted about 35 minutes.

Ethical Considerations

Ethical considerations were adhered to in this research. Anonymity of participants was upheld in the research as the researchers used pseudonyms to represent participants but not their actual names in the questionnaires. Participation was voluntary and participants signed informed consent forms before participating in the study. Confidentiality was maintained since the interviews were carried out in a secluded room in school.

Data Analysis

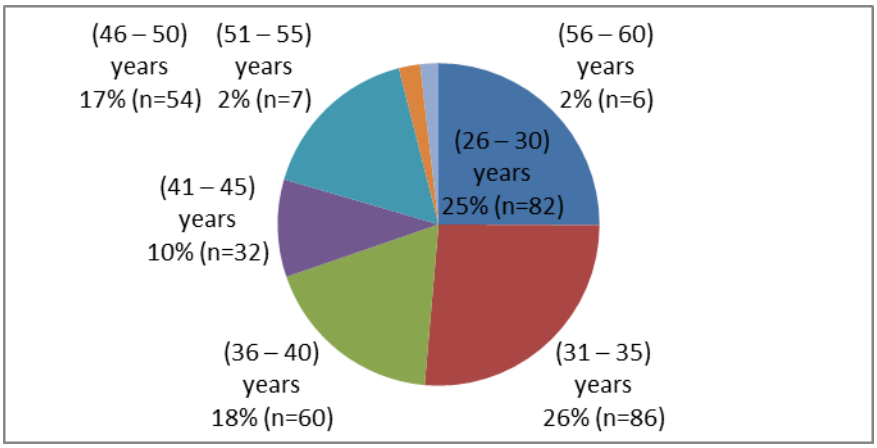
Quantitative data on teachers' self-efficacy was determined by computing the unweighted means of the scores from the Teachers' Self-Efficacy Scale (TSES) items. The hypothesis was tested at the 95% level of confidence (Hirpara, Jain, Gupta & Dubey, 2015). The Multivariate Analysis of Variance (MANOVA) was used to test the hypothesis because there were multiple dependent variables of teacher self-efficacy. Therefore, MANOVA tested for the difference in two or more vectors of means, which were linear combinations of the measured dependent variables (Harland, 2015). The tests that are found in MANOVA are Pillai's Trace, Wilk's λ, Hotelling's Trace and Roy's Largest Root (Garson, 2015). The present study used Wilk's λ to find out the effect of age on teachers' self-efficacy. This is because Wilk's λ should be used when dealing with multivariate effects of more than two groups (French et al., 2008). The hypothesis was tested by computing MANOVA for the difference across age on teachers' self-efficacy and its domains. The categories for age were 26 – 30, 31 – 35, 36 – 40, 41 – 45, 46 – 50, 51 – 55 and 56 – 60. Qualitative data was analyzed using thematic analysis, which is a method for identifying, analyzing and reporting patterns, called themes, within data by organizing and describing the data set in rich detail (Braun & Clarke, 2006).

Results

Distribution of Teachers according to Age

The study sought to establish the effects of age on teachers' self-efficacy. The descriptive result in pie chart is as shown in Figure 1.

Figure 1. Proportions of Teachers in Each Age Bracket



The results in Figure 1 shows that the in the age groups 26 – 30 years' old (n = 82; 25%), 31 – 35 years' old (n = 86; 26%), 36 – 40 years' old (n = 60; 18%), 41 – 45 years' old (n = 32; 10%), 46 – 50 years' old (n = 54; 17%), 51 – 55 years' old (n = 7; 2%) and 56 – 60 years' old (n = 6; 2%). From the results, almost half of the respondents were below 35 years of age.

Age and Teachers' Self- Efficacy

The current study hypothesized that there was no significant effect of age on teachers' self-efficacy and its domains. Table 1 shows descriptive statistics for age and teachers' self-efficacy.

Table 1. Descriptive Statistics of Age and Teachers' Self-Efficacy

Domains of Teachers' Self-Efficacy	**Age**	**N**	**Mean**	**S.D.**
Teachers' Self-Efficacy in Student Engagement	26 – 30	82	33.79	3.046
	31 – 35	86	33.56	2.848
	36 – 40	60	33.53	2.182
	41 – 45	32	33.06	3.151
	46 – 50	54	34.37	2.844
	51 – 55	7	34.14	4.140
	56 – 60	6	33.17	4.446
	Total	**327**	**33.70**	**2.880**
Teachers' Self-Efficacy in Classroom Management	26 – 30	82	33.40	3.175
	31 – 35	86	34.09	2.781
	36 – 40	60	34.20	2.510
	41 – 45	32	33.25	2.929
	46 – 50	54	34.52	3.810
	51 – 55	7	34.71	2.870
	56 – 60	6	32.67	5.715
	Total	327	33.91	3.263
Teachers' Self-Efficacy in Instructional Strategy	26 – 30	82	33.95	2.973
	31 – 35	86	34.16	2.938
	36 – 40	60	34.30	2.727
	41 – 45	32	34.09	2.333
	46 – 50	54	34.98	3.224
	51 – 55	7	32.86	3.761
	56 – 60	6	32.67	5.502
	Total	**327**	**34.21**	**2.988**

The results in Table 1 show the means, standard deviations and sample sizes the domains of teachers' self-efficacy across the age groups. The teachers in the 31 – 35 and 26 – 30 years brackets had the highest frequencies (N = 86; N = 82 respectively) while the 51 – 55 and 56 – 60 age groups had the lowest frequencies (N = 7; N = 6 respectively).The table also gives the descriptive results for the domains of teachers' self-efficacy, that is, student engagement (M = 33.70; SD = 2.880), classroom management (M = 33.91; SD = 3.263) and instructional strategies (M = 34.21; SD = 2.988). The 46 – 50 age group of teachers had the highest mean scores in teachers' self-efficacies in student engagement and instructional strategy (M = 34.37; M = 34.98) while the 56 – 60 years age group of teachers had the lowest mean scores in teachers' self-efficacies in classroom management and instructional strategy (M = 32.67; M = 32.67). The 41 – 45 age group had the lowest mean score (M = 33.06) in teachers' self-efficacy in student engagement while the 51 – 55 age group had the highest mean score (M = 34.71) in teachers' self-efficacy in classroom management. The 56 – 60 years age group of teachers had the highest standard deviations in teachers' self-efficacies in student engagement, instructional strategy and classroom management (SD = 4.446; SD = 5.715; SD = 5.502 respectively). In addition, the 36 – 40 age group of teachers had the lowest standard deviations for teachers' self-efficacies in student engagement and classroom management (SD = 2.182; SD = 2.510 respectively). However, the 41 – 45 years age group of teachers had the lowest standard deviation in teachers' self-efficacy in instructional strategy.

The MANOVA was then used to determine the effects of age on teachers' self-efficacy. The results are presented in Table 2.

Table 2. MANOVA Test Results for Age and Teachers' Self-Efficacy

Effect		Value	F	Hypothesis df	Error df	Sig	Partial eta squared	Noncent. parameter	Observed Power
Age	Pillai's Trace	.054	.969	18.000	960.000	.493	.018	17.449	.714
	Wilk's λ	**.947**	**.966**	**18.000**	**899.925**	**.498**	**.018**	**16.378**	**.677**
	Hotelling's Trace	.055	.962	18.000	950.000	.503	.018	17.311	.709
	Roy's Largest Root	.027	1.449	6.000	320.000	.196	.026	8.692	.562

Computed using alpha = 0.05

The results in Table 2 shows the values of each multivariate test, their F-scores, degrees of freedom, significance levels and observed power. The MANOVA results indicate that the effect of age on teachers' self-efficacy was not significant, Wilk's λ (6, 320) = 0.947, p = 0.498. Therefore, it was concluded that null hypothesis which stated that *"there is no significant effect of age on teachers' self-efficacy and its domains"*, was accepted. Thus, it can be concluded that there was no significant effect of age on teachers' self-efficacy.

Univariate tests were performed to determine between-subjects effects of age on the domains of teachers' self-efficacy as is shown in Table 3.

Table 3. Between-Subjects Effects of Age on Teachers' Self-Efficacy

Source	Dependent variable	df	F	Sig	Observed Power
AGE	Teachers' Self-Efficacy in Student Engagement	6	.891	.501	.352
	Teachers' Self-Efficacy in Instructional Strategy	6	1.235	.288	.485
	Teachers' Self-Efficacy in Classroom Management	6	1.206	.303	.474

Computed using alpha = 0.05

The results in Table 3 show the degrees of freedom, F-score and significance levels for the tests of between-subjects influence of age on the domains of teachers' self-efficacy. Furthermore, the results show that the effects of age on teachers' self-efficacy in student engagement, F (6, 320) = .891, p = 0.501, instructional strategy, F (6, 320) = 1.235, p = 0.288, and classroom management, F (6, 320) = 1.206, p = 0.303, were all not statistically significant.

Qualitative findings obtained from interviews with teachers indicated that teacher self-efficacy was dependent on the age of teachers. Most of the teacher respondents reported that self-efficacy increased with teachers' age up to middle age of 40 years and after which it begins to decline. His meant that as teachers began their careers, their self-efficacy increased significantly till they reached around 40 years of age. Some teacher respondents reported that: "The self-efficacy goes up from 21 to 40 and then it goes down after 40. After 40, they seek transfer or promotion because the work has become too much" (Teacher, 12). Another teacher added that, "self-efficacy increases with age of teachers until they get used to the system at around 47. They start being affected at 40 and they get worse at 50 when they start to wait for retirement (Teacher, 7).

From the interview excerpts by teachers 7 and 12, it can be concluded that teachers' self-efficacy is dependent on physical vigor which begins to decline when teachers are about 45 years of age. Teachers' self-efficacy, therefore, increases up to about 45 years of age because their physical strength remains high up to when they are about 45 years of age. Teachers' self-efficacy then goes down as teachers become older than 45 because their physical strength goes down.

The reason given for the increase in self-efficacy up to about 45 and then decline thereafter was that teacher self-efficacy increases because of better content mastery and then declines due to decreasing physical vigor and competing interests. Teacher respondents reported that, "As teachers age, you become a better teacher because of experience, better understanding of students (Teacher, 9), and another added that, "Performance goes down after 50 because the teachers get tired and become more engaged outside school" (Teacher, 3). The interview excerpts from Teacher 9 and Teacher 3 imply that high teachers' self-efficacy is accompanied by high levels physical energy, understanding students and less engagement in competing interests from life outside school.

The respondents also reported that as teachers increased in age, teachers' self-efficacy in student engagement increased due to maturity. For instance a teacher respondent, said, "With age, they know how to handle the students**.** They become even more mature and relate better with the students" (Teacher, 7). This could be interpreted to mean that teachers' self-efficacy in student engagement increased

with age because the teachers gained more experience in engaging students after a long period of interacting with younger people.

The qualitative results also indicated that the older the teachers got, however, the lower their self-efficacy in instructional strategies became. For example, teacher respondents said, "Above 40 are very resistant to innovative instructional strategies," (Teacher, 4) and "The old teachers can't come up with new ways of teaching, and only have old methodology" (Teacher, 5). These interview excerpts could be interpreted to mean that the teachers' self-efficacy in instructional strategy went down due to familiarity with old ways that have worked for them for a long time. Thus, the teachers are, therefore, resistant to change that is required to develop more innovative instructional strategies.

Qualitative results also reported that, there was increase in self-efficacy in classroom management with age. This was because the old teacher was experienced enough to know the important things that should be stressed in class. A teacher respondent said that, "They become better at classroom management because they know how to handle the syllabus to achieve certain results unlike the younger teachers who are still learning. This makes the students to be more manageable for them" (Teacher, 6). The respondents' views as reported in the interview excerpts might be interpreted to mean that teachers' self-efficacy is dependent on their ability to achieve effective curriculum implementation with students. Teachers who can implement the curriculum more effectively with students, therefore, have higher self-efficacy than teachers who do not do so. Therefore, from qualitative results, it was found that there is a significant effect of age on teachers' self-efficacy in classroom management.

Discussion

The study sought to establish the effects of age on teachers' self-efficacy and its domains among in secondary schools in Kisumu County in Kenya. Quantitative results indicated that there was no significant effect of teachers' age on teachers' self-efficacy. This quantitative finding concurred with the findings of Schwartz (2010) in the USA and Sharma and Rani (2014) in India which had found that the influence of age on teachers' self-efficacy was not significant. However, it disagreed with the findings of Top et al., (2016) in Turkey, Gkolia, et al., (2016) in Greece and Authier (2012) in Canada which reported that there was a significant influence of age on teachers' self-efficacy.

Qualitative data analysis, however, revealed that the teachers' self-efficacy increased with age up to the optimum of 40-50 years then it declines. The teachers reported that self-efficacy increases because of experience, better content mastery and achievement of better student performance in examinations. Then it declines because of loss of physical vigor and competing interests. On the domains of teachers' self-efficacy, the respondents indicated that as teachers age, their self-efficacy in student engagement remained constant, their self-efficacy in instructional strategies went down and teachers' self-efficacy in classroom management increased with age until teachers reach middle age then teachers' self-efficacy began

to decrease. This finding agreed with the findings of Bausch, Michel and Sonntag (2014) in the USA, Gkolia, et al., (2016) in Greece and Top et al., (2016) in Turkey which had indicated that teachers' age affect their self-efficacy factors. On the other hand, this qualitative finding disagreed with the findings of Hofman and Kilimo (2014) in Tanzania, Salami (2007) in Nigeria and Mensah and Lebbaeus (2013) in Ghana which reported that there was no influence of teachers' ages on their self-efficacy.

Conclusion & Recommendation

The study sought to establish the effects of age on teachers' self-efficacy. Quantitative data analysis indicated that there was no statistically significant effect of age on teachers' self-efficacy and its domains. Qualitative analysis further revealed that teachers' self-efficacy depends on age. The current study, therefore, concludes that age influences teachers' self-efficacy in a curvilinear manner. Teachers' self-efficacy and its domains increase from the time of employment until they reach middle age and then it plateaus. Thereafter, the teachers' self-efficacy declines as the teachers age beyond middle age and approach retirement because of the demands life outside. The Kenyan Teachers' Service Commission should carry out periodical assessment of teachers' self-efficacy to identify teachers that are vulnerable to low self-efficacy.

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Vocabulary Notebooks as a Noteworthy Powerful Instrument in Technical Vocabulary Learning

By Megi Plaku[*] & Viola Karapici[±]

This research paper attempts to investigate the organization and effectiveness of vocabulary notebooks by distinguishing several benefits the implementation of this technique brings in the acquisition of technical terminology through an "English for Specific Purposes course". When tackling with language learning, it is needless to emphasize the noteworthiness and the importance of vocabulary in this process. Appertaining to technical terminology, this plays entirely pertinent. Various studies have concluded that vocabulary notebooks (henceforth VN) efficiently expose different learners' strategies within this single strategy, which led us to research VN. These research data were obtained mainly by applying the observational research technique, a vocabulary oral and written exam, and a comprehensive questionnaire on the effectiveness of the Vocabulary Notebook. Mechanical Engineering, Textile Engineering, and Hydrotechnical Engineering students at the Polytechnic University of Tirana were selected to obtain the data. The observation is partly overt and partly covert. Students of Mechanical Engineering and Textile Engineering (75 students) are the treatment group wherein the Mechanical Engineering students are an overt group and the Textile Engineering students serve as the covert observational group while on the other hand, the Hydrotechnical Engineering (45 students) students are the control group. The data were obtained during and at the end of the semester. Throughout the observation all along the 1st semester, it was perceived that most of the students organized their VN by utilizing mainly Microsoft Word downloaded on their Smart Phones, while the rest used the traditional paper notebook to organize their technical VN. The organization of the VN reflected the strategies each of the students implemented to learn technical terminology. At the end, students were tested on their acquired terminology through an oral and a short-written exam and then a questionnaire was handed to them. The students of the overt group making use of a digitalized form of a Notebook resulted to have acquired most of the technical vocabulary. In the main, the overt group outperformed the covert group on the acquisition of technical vocabulary, while the control group's score on the oral exam was significantly below, compared to the all-inclusive treatment group. Students' questionnaire revealed that overall students had a positive approach to this strategy and they embraced the autonomy acquired throughout the semester by implementing this strategy. With the exception of the effectiveness on vocabulary acquisition, which was on higher levels, this strategy proved itself once again to be an enhancer and promoter of learner autonomy.

Keywords: vocabulary notebooks, autonomous learning, technical terminology
List of Abbreviations: VN – Vocabulary Notebook, ME – Mechanical Engineering, TE – Textile Engineering

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Introduction

Vocabulary is essential apropos of communication be it spoken or written, but its significance and importance is indispensable when dealing with English for Specific Purposes (ESP). As future professionals, for the purpose of understanding the meaning of the terms, be it while reading or listening to certain content with technical terminology, a considerable receptive vocabulary (professional and scientific papers or books, etc.) is needed, while on the other hand in order to express themselves writing or speaking (drafting reports, making presentations of certain projects, etc.), professionals will need an appreciable expressive vocabulary. In 1972, Wilkins defined best the role of vocabulary in communication by stating, "Without grammar, very little can be conveyed, without vocabulary nothing can be conveyed". This statement is also supported by Valdez (2023), who states that there is a metaphor about the relationship of vocabulary and grammar: grammar is a string and vocabulary is the copper cash. The string is really necessary; however, the coins can never be neglected. Without grammar, only limited information could be transferred, while if vocabulary is absent, nothing could pass by and then grammar is nobody. A considerable number of technical vocabulary is requisite and pivotal for students of ESP in order to operate as well as possible in their future professional fields. As ESP lecturers, throughout the years we have noticed that students, as Knight (1994, p. 285) says, consider vocabulary as "…their number one priority". Students are aware of the role terminology has on their future professional careers. It is unquestionable that without a terminology stock in the English language, their future as engineers will not blossom the same.

"Vocabulary learning is one of the major challenges that foreign language learners face during the process of learning a language" (Ghazal, 2010, p. 84). Therefore, we assume that it is of vital importance in the field of ESP learning to emphasize the importance of vocabulary learning and to devote more time and attention to this aspect of language learning because the absence of a rich vocabulary can be a hindrance to enhancing listening, reading, writing and speaking skills. This statement is fully supported and complemented by Baba (2009) who says that learners are aware that their limited vocabulary will hinder a good quality of writing.

In light of the fact that this part of language acquisition is regarded as being crucial, importance is given to the strategies students should use in order to acquire and practice this terminology as effectively as possible. This poses a challenge, especially for teachers who have to apply different teaching and learning strategies in order to, ultimately, have an effective technical terminology learning and teaching process. We think that it is imperative that steps be taken to investigate practical and efficient strategies for assisting students in expanding the breadth and depth of their vocabulary, which will ultimately result in successful and efficient ESP vocabulary acquisition. Vocabulary Notebook, is the one language learning strategy that will be the subject of this research work.

The aim of this study is to point out the techniques, students used to organize their VN and acquire technical terminology as well as the effectiveness and benefits of VN in the acquisition of technical vocabulary. The target of the research

belongs to students of Mechanical Engineering and Textile Engineering, being the treatment group, and students of Hydrotechnical Engineering at the Polytechnic University of Tirana, being the control group. The study's results will be covered in detail in a separate section, and conclusions, restrictions, and recommendations will be outlined at the end.

Literature Review

According to Nation (2001), the use of vocabulary learning strategies in learning vocabulary helps in facilitating the process of vocabulary acquisition… and …a large and rich vocabulary can be acquired with the help of Vocabulary learning strategies.

Additionally, students/teachers implement these strategies in accordance with students' learning types and students' needs. During the process of vocabulary development, students need to be directed and guided by their teachers to manage study time to optimize learning both inside and outside of the classroom (Rogers, 2018). Teachers should come to recognize students' needs, strengths, and weaknesses, in order to obtain the set objectives.

Earlier, there have been various vocabulary learning strategies among scholars such as Schmitt and Schmitt (1995), Gu and Johnson (1996), and Nation (1990) etc. However, among these different strategies, there is a common denominator: the vocabulary notebook.

Gu and Johnson (1996) identified six different strategies, among which note-taking. Schmitt and Schmitt 1995 focus on VN has been on the theoretical framework and some practical suggestions for the organization of these notebooks. Spotlight has been on vocabulary acquisition from different perspectives and activities relevant to different linguistic approaches and attitudes of learners while fostering independent learning. Certain studies were conducted having a direct bearing on VN.

Fowle (2002), conducted a study on the matter of VN at the end of which, he shared positive perspectives emphasizing the effectiveness of this strategy on vocabulary acquisition and on fostering autonomous learning.

Dennison (2014) did not share the same result in his study's outcomes compared to Fowly. It concluded that students showed reluctance rather than willingness to keep VN.

A vocabulary notebook is germane to strategies within a single strategy of vocabulary acquisition and this makes it an easily adaptable instrument for all types of learners taking into consideration Bookengsaen and Intaraprasert (2014) who state that different students or learners may use different strategies.

Muhaimin, Munir, and Suharsono (2018) expressed that "to learn vocabulary effectively, students must not only have the ability to do the learning, but they also must be able to reflect on their own ways of learning", and VN allows for that to happen. Additionally, Luchini and Ferreiro (2023) state that "… it could be true to say that the most effective way for learners to enhance their active vocabulary repertoire is for them to be centrally involved in their learning process". VN is one

of the language learning strategies that provide students with the possibility and ability to guide and manage their learning process, while on the other hand fostering them in choosing different techniques to complete the VN, consequently promoting and enhancing autonomous learning skills.

Mohseni-Far (2007, p. 146), while presenting his attitude towards vocabulary acquisition in general touches upon vocabulary notebooks while stating "getting information about a lexical unit, learners may take notes, in the form of vocabulary notebooks… Note-taking is one of the basic strategies often recommended by researchers in the field of vocabulary learning.

According to Zhang and Wu (2020), the use of vocabulary notebooks can enhance students' vocabulary acquisition, especially in terms of vocabulary depth. Moreover, findings by Hsieh (2019) discovered that using a vocabulary notebook can improve students' retention and acquisition of vocabulary while encouraging active participation and independent learning. However, a number of variables, including the learner's features and the instructional technique, affect how effective vocabulary notebooks are. Ren and Li (2020) draw attention to the possible advantages and difficulties of using vocabulary notebooks and other technology to assist EFL learners' vocabulary acquisition. According to these researches, vocabulary notebooks can be a useful tool for EFL non-majors learning ESP vocabulary, but how effective they are will depend on how carefully different contextual elements are taken into account. However, even though keeping a VN has some restrictions, like time consumption in choosing words, prudency in judging the usefulness of terms, and in comprehending these terms, that students may face, we assume that the advantages of a VN overshadow these drawbacks.

Methodology of Research

Research Design

The experimental research design was applied in the current study. In an experimental research design, the dependent variable is monitored after the independent variable is altered through treatment or intervention. This allows researchers to examine the impact of the independent variable on the dependent variable. Students' technical lexis concerning definitions in the English Language, translation and definition in the Albanian Language, and terms' application in technical contexts, is the independent variable. The dependent variable refers to the effectiveness of VN in technical terminology acquisition and enhancements as well as the techniques implemented in the completion of the VN. VN itself is the intervening variable, being administered to obtain technical vocabulary augmentation and retention.

The research questions of this study are:

Which are the techniques students use to organize their VN and acquire technical terminology?

Is VN effective and what are the benefits of it in the acquisition of technical vocabulary?

Participants and Location

The study was conducted at Polytechnic University of Tirana. The sample consists of 120 students, 45 of whom are students of Mechanical Engineering, 30 students of Textile Engineering, and 45 students of Hydrotechnical Engineering at Polytechnic University of Tirana.

Students of Mechanical and Textile Engineering serve as the experimental group, while the Hydrotechnical Engineering students are the control group of this research.

Within the experimental group, there is a division into the covert and overt groups. Mechanical Engineering students are the overt group being knowledgeable of the study while the Textile Engineering students are the covert group who have no information that they are being observed until the vocabulary oral exam at the end of the semester.

Instruments

Observation

Seeing is believing. One of the tools implemented in this study is observation. Students of both control and experimental groups have been in the loop throughout a full semester. Students of the treatment group have had the guidance of the teacher during the organization of the notebook and on the other side there has been a close observation of students, regarding their strategies for organizing and learning the terminology of their correspondent field of study. Special attention is given not only to students' attitudes towards VN, but also to students' collaborative activities and peer interactions were observed.

The observation is a participant observation. With participant observation, researchers actively gather data and participate in the study itself by asking questions to students, observing behaviors and writing them down.

Vocabulary Oral Exam and Short Vocabulary Test

During the last week of the semester an oral exam on vocabulary acquisition in conducted. Students were asked questions on terms definitions and translations but also comprehension questions on these terms. During the oral test, students were asked random questions concerning different topics dealing with Mechanical Engineering concepts as well as terms they had retrieved from other sources and incorporated in their own VN.

The main purpose of this choice was to test students' verbal communication skills by making use of the terminology included in their VN. Oral exams help students develop authentic communication skills in their discipline. Oral tests allow students to develop the ability to communicate in skill areas they will need later in the workplace (Stoutenburg, 2023).

The *short Vocabulary Test* duration was 15 minutes. The test was divided into 4 sections, dealing with definition and translation; synonyms and antonyms;

illustration through sentence examples, and usage of the terms in context. The first two sections consisted of 7 words each. If they correctly found the definition and translation of 5 words or more, they would get the maximum of points. The third section comprised 3 words. If the students answered correctly to two or more, they would get a maximum of points. The fourth section focused on a paragraph with 5 blank spaces in it to be completed. The missing words were part of the request. If the students completed without errors at least three of them, they would get a maximum of points as well.

Questionnaire

All participants of the treatment group were willing to share the whole process of the notebook vocabulary organization and terminology learning truthfully through the completion of the questionnaire on notebook effectiveness. The questionnaire consists of 8 questions handed to ME and TE students. The purpose of this questionnaire was to gain some insights into the students' points of view and attitudes towards VN as well as to specifically distinguish the techniques used by them during its completion. The questionnaire was filled in by 74 students out of 75 total. It was handed to them manually after failing to complete it online. Students showed a reluctance to complete the questionnaire online, therefore we proceeded manually.

Procedure

The research was initiated in the second week of the semester. Students of Mechanical Engineering (Henceforth ME) and Textile Engineering (henceforth TE) were asked to organize a Vocabulary Notebook. This Notebook would be part of the teaching and learning process in class and during their study time at home. Only students of ME were notified that this VN, serving as a comprehensive assessment tool, will be blended in with other elements for the final assessment. The choice was personal on whether it would be a paper Notebook or a digital (mobile-based) one. Students were required to include the new terms they would encounter throughout the semester during lectures, in other authentic texts, and in other sources. Students of TE had no information they would be part of research until the end of the semester.

The strategies they implemented to acquire and retain these terms through VN were entirely personal. Still, the teacher mentioned only once some basic techniques, to supply them with some hints they will avail themselves of, such as 1. Source Language definition, pictures especially when dealing with tools or types of machinery, authentic materials on a specific term, translations on the target language, synonyms or antonyms of the term, and illustrations through a sentence or short paragraphs. Only these basic techniques were mentioned in order to foster autonomous learning and let students figure out the whole process.

However, the Mechanical Engineering students were under the teacher's constant supervision and guidance every week, giving each student the opportunity to share his/her approach and strategies for organizing the notebook and learning

the terms, as well as giving her feedback on the VN. Also, different activities on vocabulary acquisition were introduced in class and students' attitudes toward these activities were observed.

On the other hand, students of Textile Engineering were asked once in three weeks about their ongoing work with the notebook.

Data collection ended the last week of the semester, the 14th one, where students of both Mechanical and Textile Engineering performed an oral exam on terminology acquisition, and a short vocabulary test as well as a questionnaire on the effectiveness of this VN was handed to them.

By making use of different tools for the study, we seek to give a much clearer picture of the VN implementation and its effectiveness. It is worth mentioning that students were invited to voluntarily contribute the results of their oral/written exam and questionnaire to the research.

Findings

Data obtained from this study will be analyzed from different perspectives. The data obtained from the questionnaire and the exams on technical terminology will be analyzed from two viewpoints: overt and covert group. The focus will be on techniques implemented for the completion of the VN and on both exams' results. The data from the Observation will be presented taking into consideration students' interaction and students' decisions on traditional paper vocabulary notebooks & digital vocabulary notebooks.

Usage of Traditional Paper Vocabulary Notebooks and Electronic Notebooks (Mobile-Based)

Technology's involvement in the learning and teaching process is not a novelty anymore in today's educational system. Teachers try to incorporate different technologies such as Video Projectors, Videos, PPT presentations, etc., whenever it is possible in their teaching process in class by making language classes more interactive, flexible, and innovative due to various online resources as tools for valuable professional development as stated by Cosgun and Savas (2019) and students too, on the other hand, are prone to and willing to integrate digital technologies in their autonomous self-governing learning process and as (Cripps, 2020) and (Panmei and Waluyo, 2023) point, students enjoyed using technological tools and indicated that digital technologies had become an important skill to bring them closer to the rich environment of the target language. Findings from the observation where on focus was student's attitude towards the completion of VN and the techniques they implemented in class to complete the VN, resulted in a division of students into two groups. The first group decided to make use of traditional paper notebooks and the second group decided to organize their VN through a digital tool, Microsoft Word (in most cases) downloaded on their smartphones.

Samples of the VNs can be found in the Appendix.

Table 1. Traditional Paper Notebook and Electronic one (Overt Group)

Traditional Paper Notebook	Electronic Notebook
10 Students	35 students

Table 2. Traditional Paper Notebook and Electronic Notebook (Covert Group)

Traditional Paper Notebook	Electronic Notebook
23 Students	7 students

Tables 1 and 2 indicate that the majority, a great number of students organized their notebooks electronically, especially the overt group ME students. Almost 80% of ME students decided themselves to embrace technology and use it for educational purposes. There is a significant difference in the use of paper vocabulary notebooks between the two groups, where 7 TE students out of 30 made use of Electronic (mobile-based) Vocabulary Notebooks which means 15% compared to 80% of ME.

Overall, during the observation, when asked why they chose this technique most of the students implied that they found it easier and considered it a more effective and productive way of organizing notebook vocabulary and learning vocabulary via Microsoft Word (a Word Doc.).

During the observation, it was noticed that all students made use of a notebook, even the ones who decided to organize their VN in an electronic form. They initially wrote down the word in a paper notebook, and then they proceeded with the VN in a Microsoft Word Doc. This statement is a partial reflection of what nowadays is referred to as hybrid learning which according to Doering (2006) refers to the blending and mixing of the learning environments: face-to-face classroom instruction and online environment. Students of ME engagement with internet sources was discernible while they made use of Documentaries on their field of study, YouTube videos, TikTok, and Instagram short reels to understand concepts and terms and then expand, perceive, and master their technical vocabulary.

Traditional paper VN organization on students of TE and 5 of ME was restricted only to two to three techniques: definition and translation to Albanian, few providing sentence examples for each, while 5 students had word-formation of the term included in the VN. However, their interest in different activities and games on terminology during lectures was considerable.

While the dictionary via Microsoft Word, consisted of definitions and translations as well, there were longer explanations concerning the meaning of the term. Some students had pictures incorporated in the document. We should emphasize the fact that there were students who printed the electronic dictionary and handed it on paper.

A considerable number of TE students and just a few of ME reflected some burdensomeness in organizing this VN when they asked if it was obligatory or not. Nevertheless, throughout the semester, their commitment to the VN flourished compared to their perspective at the beginning which was not positive. Some of them showed enthusiasm in creating their own dictionary.

It can be assumed that ME students' awareness of the research since the beginning and the fact that this VN would be a prerequisite in the final evaluation,

served as incentives and great motivational tools for them to implement this strategy while learning technical vocabulary.

Collaboration among students of ME was noticed during the discussion on VN organization while students exchanged their techniques with one another and during various activities on terminology acquisition provided by the teacher in class. Once there was a "peer- assessment" of the vocabulary notebook where students evaluated each other's work. They asked each other about certain definitions or translations, mainly. Consequently, they learned from one another and this interaction helped in the enhancement of technical vocabulary.

From the observation, we learned that they even shared TikTok or Instagram short videos, known as "Reels" with one another. The videos consisted of different contents, be it on tools, part of types of machinery, mechanical operations, and engine operations relevant to the same content students have been introduced to in lectures and seminars, etc.

Students' Oral Exam and 15 Minutes of Vocabulary Test

During the last week of the semester, students performed an oral exam and a short vocabulary test on the technical vocabulary of the textbook and lectures as well as the terms from other sources they had attached to the VN. Part of their VN were terms from the textbook, during lectures, and terms they had attached from other sources. They were asked for definitions, translations, synonyms or antonyms, phrases with the terms, and implementations of certain terms in different contexts.

Samples from the Short Vocabulary Test

a) Find the definition and the translation of the terms below:
Connecting rod – a piece that transfers motion from a piston to a main engine shaft- shufer lidhese.
b) Fill in the gaps. Choose which word best fits each blank. _____ occurs when heat is transferred through _____ currents in a fluid.
c) Write your own sentences making use of these terms: Couplings, Feather edge…etc.
d) Put the terms in the right place

Table 3 shows the number of students who have obtained the maximum of points in each of the exercises. The numbers show the ratio between the students who have obtained the maximum of points in each exercise over the total number of students.

Table 3. Students' Results on Technical Vocabulary Acquisition (Relevant to the Terms from Textbook and Lectures) Short Vocabulary Test

	Students	**Definitions/ Translations**	**Synonyms/ Antonyms**	**Usage in Sentences**	**Usage in Context**
Overt Group	45	40/45	36/45	35/45	37/45
Covert Group	30	19/30	16/30	15/30	18/30
Control Group	45	35/45	25/45	23/45	24/45

From the results, we can conclude that the overt group outperformed the covert and control group. Students of ME, being aware of the significant and considerable importance of the VN in their final evaluation, devoted lots of time and effort to it by consequently acquiring and retaining many more terms compared to TE students.

However, in terms of the treatment group and control group, the control group's performance was significantly below compared to the treatment group.

The oral exam aimed to measure the receptive and expressive technical vocabulary of the students. Taking into consideration that both groups have been working with the same textbook during lectures and seminars, they were asked the same questions on topics from textbooks and terms they themselves had attached to the VN. Students of ME outperformed the covert group of TE, whose commitment to the VN compared to ME students had been trivial.

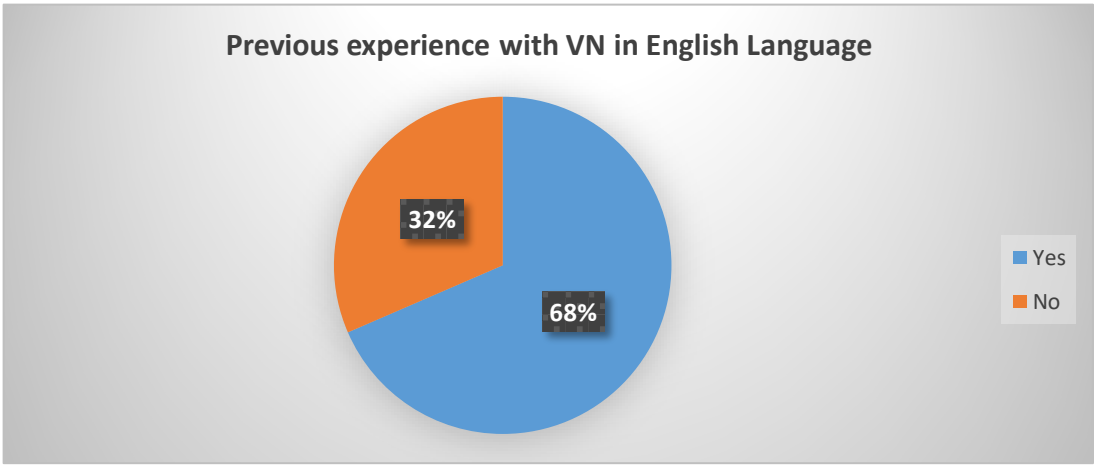
Students of TE had restricted themselves to learning just the definition and translation of the terms. Contextual comprehension was remarkably lacking from TE students compared to ME. We can assume that video assistance for students of ME in completing VN had a considerable effect on this aspect.

Questionnaire's Findings

The questionnaire aimed to reveal students' perspectives and attitudes on keeping a VN and techniques implemented while working on and completing the VN.

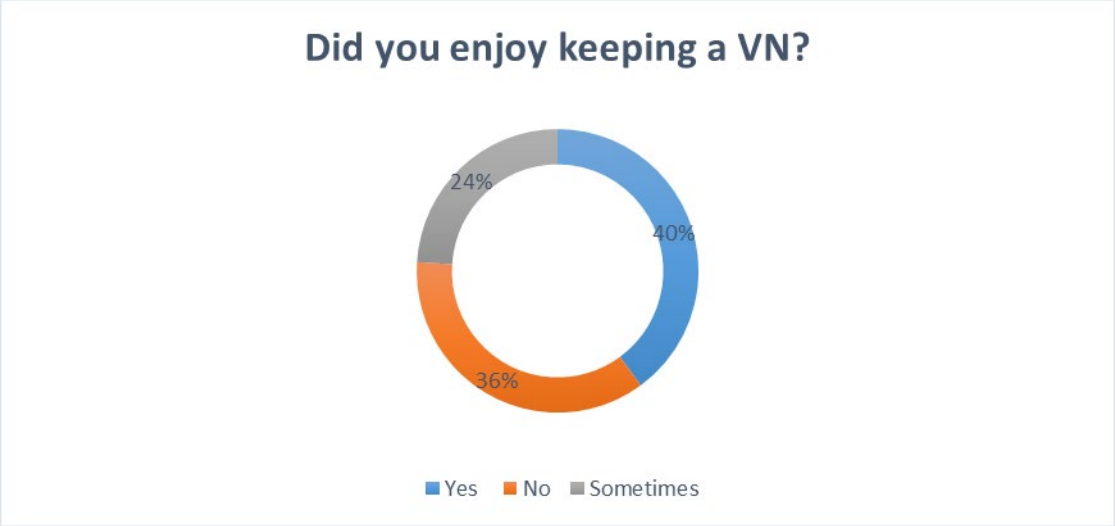
The first question of the questionnaire concerned students' previous experience with VN. Most of the students were familiar with keeping a VN, mostly implemented in private courses in English Language in Albanian rather than in high school. The answers concluded that 50 Students had previously had a VN while the rest (24 students) had no previous familiarity with VN. This information is further supported by Figure 1.

Figure 1. Previous Experience with VN in the English Language



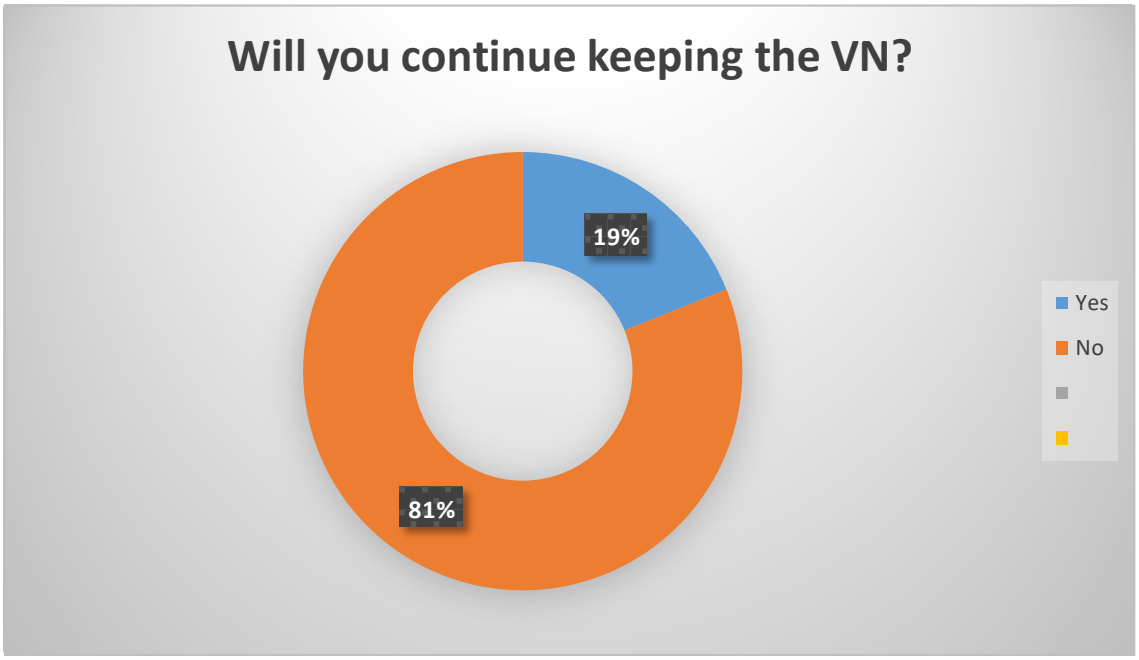
The second question of the questionnaire aimed to shed light on students' experience of keeping a VN. The question was straightforward, whether they enjoyed keeping a VN or not. Figure 2 shows our expectations that not 74/74 enjoyed the organization of VN, bearing in mind the reluctance students manifested at the beginning of the semester. 40% said Yes, 36% said No, and the rest 24% said Sometimes.

Figure 2. Enjoyment in Keeping a VN



Then a question whether they would continue to keep this VN more than 75% of the students answered "No" and the rest said "Yes". By obtaining these results, we conclude that students manifest no predisposition to continuing to keep a VN, their projections on keeping a VN after realizing the course seem to be unfavorable (Figure 3).

Figure 3. Students' Projections on VN



When asked about the main techniques implemented in the organization of the VN the answers varied. From Tables 4 and 5, we can conclude that the most used techniques are the traditional ones, consisting of Translation, accompanied by Definitions in English language and Sentence Illustrations.

Table 4. Techniques Implemented on the Organization of the VN and the Acquisition of the Terms

Definitions in English Language	58/74
Translation in Albanian	74/74
Antonyms and Synonyms	38/74
Sentence Examples	50/74
Pictures	45/74
Consulting each other	40/74

Table 5. "Others" Answers of Students (Electronic VN)

TikTok/Instagram Reels	35/74
YouTube Videos	40/74
Documentaries	40/74

One of the alternatives of this question was "others" where students were asked to individually complete the answer. More than 75% of students belonging to the overt group and 10% of the covert group listed the above techniques concerning Online Platforms. Uncloudy is the fact that, through VN and these techniques each of the students "tailored their notebook" in accordance with their needs and learner's typology.

Students answered on the number of terms included in their VN varied. 90% of the terms included in the VN of TE students were terms they were presented to during lectures. Students of ME had more than 30% of words found by themselves in other authentic documents or in other sources such as documentaries or videos via the abovementioned platforms.

Table 6. The Most Effective Techniques According to Students

Definitions	67
Translations	60
Pictures	57
Videos	45
Synonyms/Antonyms	25
Sentence Examples	35

As for the penultimate question of the questionnaire and one of the most important ones, in reference to Table 6, on the most effective techniques in term acquisition through this VN, they distinguished definitions predominantly with pictures attached, and short videos on social media in order to grasp synonyms or antonyms and to have a productive learning of main concepts, mainly related to the field of mechanical engineering and translation of the word in Albanian as the most effective ones.

The least effective ones based on students' answers were synonyms and antonyms. The concluding question of the questionnaire referred to students' attitudes towards the usage of Vocabulary Notebooks in ESP subject.

Table 7. Students' Attitude Towards VN

	YES	NO
It helped me gain autonomy during my learning process	69	5
After having watched videos, I formulated my own definition of the term and wrote it down	23	51
It was much easier for me to look up a certain term in my VN	57	17
I had it with me in every ESP class.	74	0
I consulted my peers while completing it	60	15
It helped me organize my own dictionary regarding ME /TE	60	14
Having them organized facilitated the acquisition of the terms	62	12
It helped me understand ME/TE concepts	39	35
I think I will keep this after finishing the final exam.	10	64

Some of the statements included in this part of the questionnaire are a product of the observation conducted throughout the semester. As can be seen from Table 7, we are able to state that there is a generally positive perspective of students toward VN. More than 85% of students affirmed the statement on whether VN helped them gain autonomy or not. This statement is supported by another statement that refers to the formulation of videos on their own (which we consider as an indicator of autonomous learning), after having watched videos.

There is a slight contradiction concerning one of the statements. Students affirm that they had the VN in every ESP class, while we confirm that that is not entirely true. There were a few times they didn't have it with them.

Students' interaction witnessed during the observation, is fully supported by students' answers, where 60 of them state they did consult one another while completing the VN.

Discussion

The findings of the research affirmed the noteworthiness and effectiveness of Vocabulary Notebooks in learning technical terms. Students' final results on their Vocabulary test and Oral Exam prevailed teachers' expectations of terminology acquisition via this Vocabulary Notebook.

The results of this study were consistent with the study of Fowle (2002) where students also proved to gain independence while learning and had generally a positive attitude towards keeping a VN. The majority of students proved to be really self-demanding concerning various techniques implemented while organizing the VN and learning the terms even though at the beginning students of TE manifested a strong reluctance to keep the VN. Some explanation for this attitude could refer to the fact that they were not knowledgeable of the significance of this VN in their final assessment and the "mark motivation" was absent.

Embracing technology by exploiting it in the best way possible, by creating a VN using a CLIL approach (via Microsoft Word) is a significant indicator of ME students' interest in learning and retaining ME terminology, while it can also be a more convenient choice due to the commodity of having the VN with them wherever they are. In this respect, students executed a self-evaluation of their capacities and their best-to-implement techniques for the purpose of having the desirable achievement in terminology acquisition and in the overall performance in ESP subject.

Since they are a part of what nowadays is referred to as GENERATION Z and are constantly using cellphones, preferring collaborative learning, using a Word document resulted to be more convenient and comfortable for them. In addition to that, students' commitment to online platforms such as YouTube Videos or Reels in Social Media platforms such as Instagram, TikTok, and YouTube contributed as a revelation of this study. Students availed themselves of these videos in order to have a better understanding of mechanical engineering concepts. They consulted lots of videos in order to understand different operations, actions, and concepts especially those related to the mechanical engineering area. The assistance of visual aids especially videos, made it easier for students to understand the concept and the term, to formulate their own definition of the term and to write it down in the VN which over and above these, enhanced their autonomous approach towards learning. Additionally, when watching a video, students are exposed to the message through two different channels: the oral channel because the information is presented through words, and the visual channel because the information is made available to them through real and in their field-of-interest context. The

presence of VN persuaded them to consult other techniques and strategies to acquire and retain the required terminology. Some of these techniques were directly attached to the VN (translation, definitions, synonyms, antonyms, word formation) whereas, others in reference to the abovementioned (visual aids, videos photos, etc.) were employed as means to understand and retain the terms in an effective way.

Moreover as Bazo, Rodríguez, and Fumero (2016) state, "When applied to a CLIL context, Vocabulary Notebook can help teachers reduce the excessive time that is usually dedicated to teaching specific vocabulary in class", which we presume is an appreciable benefit of VN. However, overall, the techniques used by students were mostly the same. There was no big difference in the choice of techniques while structuring the VN. It is relevant to the era we are living in, the fact that students find it more convenient and practical to just "grab" the smartphone and proceed with typing in and searching for information, definitions etc. for the term they are interested in, rather than getting a pen, notebook and started writing it down.

Teachers allocated considerable time to activities the heart of which was, developing a deep understanding of engineering concepts. Distinct activities were implemented during lectures in order to boost and foster terminology learning and to widen the methodology of their VN completion. Games were part of these activities because Martinson and Chu (2008, p. 478) state "Games are effective tools for learning because they offer students a hypothetical environment in which they can explore alternative decisions without the risk of failure. Thought and action are combined into purposeful behavior to accomplish a goal. Playing games teaches us how to strategize, to consider alternatives, and to think flexibly." The incorporation of games in the completion of the VN was productive and effective, while students attached, through interaction and satisfactory collaboration among and with each other, terms used in games to their VN.

Even though gender was not a focus of this research, it has affected the outcomes. Students of ME, 90% of whom were males, having a captivating interest in their field along with the grown interest in the Mechanical Engineering Industry in Albania, prevailed the other students of TE being 95% females in every aspect concerning VN (in strategies employed and in the retention of engineering terminology). In a study conducted by Bookngsaen and Intarapraser (2014), there was an opposite outcome concerning gender roles in Vocabulary learning strategies, where female students had a more effective and diverse application of strategies. However, we have to emphasize the fact that these samples are different concerning both quantity and methodology.

Students' attitude towards VN was eventually positive based on the questionnaire. We have to admit that students were aware of the benefits of VN (such as autonomous learning, interaction with one another and acquisition of new terms) but, on the other hand, their predisposition to keep this VN even after finishing the ESP subject was low. This result of the research was consistent even with Vela and Rushidi's (2016) study where only a few students asserted, they would maintain the VN.

Conclusions

In the main, from this research, we can conclude that,

1. Students' perspectives while completing the Vocabulary notebook were miscellaneous. First, there was an apparent division in "hand-in-hand with technology" students embracing a kind of hybrid learning and "let us stick to traditional paper notebook" students. They applied different techniques, but in the main, they adhered to English Language definitions, Albanian translation, and sentence illustrations.
2. VN implementation resulted in interaction and collaboration among students in class and outside class. That means, there was a:

    a. Student-centered class rather than a teacher's centered one
    b. positive atmosphere in class,
    c. more information shared among students,
    d. more terminology presented among them
    e. less anxiety and
    f. more self-esteem.

3. Metacognitive strategies were employed by students while organizing and learning the engineering terminology via VN including pictures and digital media, listening and watching English Mechanical Engineering content (videos, Instagram, or TikTok reels).
4. Teachers' feedback and assessment throughout the completion serve as a simulator and motivator for students to devote as much effort as possible to the VN.
5. Vocabulary Notebooks proved to be a promising and noteworthy student-centered approach, wherein students were able to enhance and foster their own autonomy while learning and, as Benson (1997) states, "autonomous learning is more or less equivalent to effective learning". By means of this, having "furnished" students with the right methodology and knowledge on how to learn a language (technical terminology regarding Mechanical Engineering, in this case), is a goal accomplished.
6. Students acquisition of terminology by making use of VN was satisfactory.

Current research findings proposes that further investigation be done in other engineering fields of study. Furthermore, it would be more interesting if there was a solely deep investigation of Digital Vocabulary Notebook and its effect on technical vocabulary.

Limitations of the Study

This study has various constraints that impacted the discussion of the results as well as the veracity and accuracy of the research questions. The first limitation

was the quantity of time available to carry out the present research. We could have discovered more additional data to help answer the research questions if the study was extended to a year. A second restriction concerns the survey sample. A broader variety of replies would result in more reliable outcomes.

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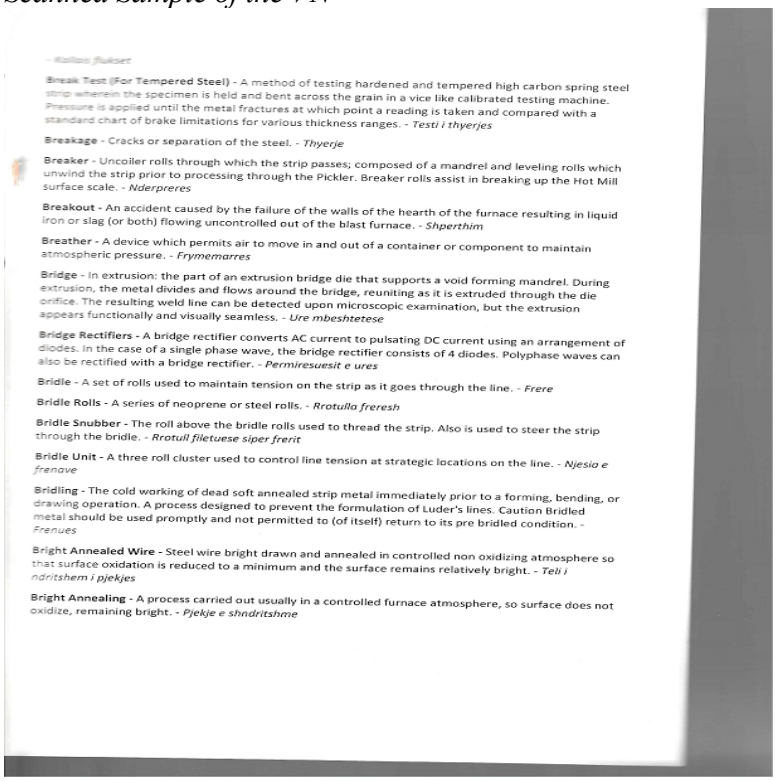
Appendix

Term	Definitions	Translation	Word-Formation
Sacking	Coarse fabric used for bags or sacks	Pelhure thasesh	Sack (root) + ing (suffix)
Screen	A partition consisting of a decorative frame or panel	perde	Screen (noun)
Sewing machine	A textile machine used as a home appliance for sewing	Makine qepese	Sew (verb) + ing (suffix)+machine (noun)

Term	Definition	Translation	Sentence Illustration
Blister	Coating defect consisting of a lower coating film weight on the bottom of the coated sheet caused by high velocity air in the oven.	Fshike	The blisters are hollow, and are usually caused by entrapped air.
Lug bolt	Serves to fasten the wheel of the car to wheel's hub or brake drum	Fiksuese e timonit te makines	Lug bolts are very easy to replace.
Accelerator	A device, typically a foot pedal, which control the speedof a vehicles engine	Pershpejtues (pedali I gazit)	He eased his foot off the accelerator.

Scanned Sample of the VN



- Kallaisi flukset

Break Test (For Tempered Steel) - A method of testing hardened and tempered high carbon spring steel strip wherein the specimen is held and bent across the grain in a vice like calibrated testing machine. Pressure is applied until the metal fractures at which point a reading is taken and compared with a standard chart of brake limitations for various thickness ranges. - *Testi i thyerjes*

Breakage - Cracks or separation of the steel. - *Thyerje*

Breaker - Uncoiler rolls through which the strip passes; composed of a mandrel and leveling rolls which unwind the strip prior to processing through the Pickler. Breaker rolls assist in breaking up the Hot Mill surface scale. - *Nderpreres*

Breakout - An accident caused by the failure of the walls of the hearth of the furnace resulting in liquid iron or slag (or both) flowing uncontrolled out of the blast furnace. - *Shperthim*

Breather - A device which permits air to move in and out of a container or component to maintain atmospheric pressure. - *Frymemarres*

Bridge - In extrusion: the part of an extrusion bridge die that supports a void forming mandrel. During extrusion, the metal divides and flows around the bridge, reuniting as it is extruded through the die orifice. The resulting weld line can be detected upon microscopic examination, but the extrusion appears functionally and visually seamless. - *Ure mbeshtetese*

Bridge Rectifiers - A bridge rectifier converts AC current to pulsating DC current using an arrangement of diodes. In the case of a single phase wave, the bridge rectifier consists of 4 diodes. Polyphase waves can also be rectified with a bridge rectifier. - *Permiresuesit e ures*

Bridle - A set of rolls used to maintain tension on the strip as it goes through the line. - *Frere*

Bridle Rolls - A series of neoprene or steel rolls. - *Rrotulla freresh*

Bridle Snubber - The roll above the bridle rolls used to thread the strip. Also is used to steer the strip through the bridle. - *Rrotull filetuese siper frerit*

Bridle Unit - A three roll cluster used to control line tension at strategic locations on the line. - *Njesia e frenave*

Bridling - The cold working of dead soft annealed strip metal immediately prior to a forming, bending, or drawing operation. A process designed to prevent the formulation of Luder's lines. Caution Bridled metal should be used promptly and not permitted to (of itself) return to its pre bridled condition. - *Frenues*

Bright **Annealed Wire** - Steel wire bright drawn and annealed in controlled non oxidizing atmosphere so that surface oxidation is reduced to a minimum and the surface remains relatively bright. - *Teli i ndritshem i pjekjes*

Bright Annealing - A process carried out usually in a controlled furnace atmosphere, so surface does not oxidize, remaining bright. - *Pjekje e shndritshme*

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Implementing Feedforward-based Collaborative Assessment in Higher Education

*By Hong Thu Thi Nguyen**

The study examines the use of feedforward-based collaborative assessment (FbCA) for students majoring in foreign languages at a tertiary institution in Vietnam. A mixed-method research approach was utilized to collect both quantitative and qualitative data from 306 English major students and eight teachers. Research instruments such as questionnaires, reflective diaries, observations, and interviews were employed to assess the perceptions of students and instructors regarding the significance of implementing FbCA, its impact on students' learning engagement and academic achievement, and students' expectations for changes in assessment mechanisms to ensure the effective use of FbCA. The findings highlighted several benefits of FbCA in terms of skill, knowledge, and practice development. This evaluation approach enhanced students' learning motivation and positively contributed to their academic performance. However, the qualitative data also revealed various challenges related to the effective implementation of assessment practices and the maintenance of academic integrity. Based on these findings, recommendations were made for improving teaching, learning, and assessment practices.

Keywords: academic performance, collaborative assessment, feedforward assessment, foreign language-majored students, learning motivation

Introduction

Identifying that learning is a process, instructors have recently taken progress-based assessment into consideration to be employed in classroom instead of outcome-based assessment (Dawson et al., 2019; Winstone & Carless, 2020). However, effectively implementing this assessment approach has emerged as a pressing issue. Several noteworthy questions revolve around the topic such as "What assessment models are applied to align with the current learning and teaching approaches? How can teacher and students implement the assessment practice effectively? How students' academic outcomes change after utilizing this assessment method?". Educators, researchers, and instructors have shown concern for these inquiries, investing more efforts to explore optimal solutions to these issues. The term "feedforward" has recently become prominent in assessment landscape, existing and utilizing alongside "feedback". While feedback emphasizes reflection and looking back at what has been done, feedforward is recognized as a process of moving forward to improve the products and to obtain the goal (Winstone & Carless, 2020). Southall and Wason (2016), Thorpe (2008), and Tong (2011) acknowledge that feedforward provides opportunities to receive comments before summative assessments. Through feedforward, learners not only

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revise knowledge but also to improve skills such as planning ability, critical thinking capacity, or self- assessment practice competence. Students use the strategies to analyze, monitor, and subject their work to teacher requirement (Huang, 2016; Robson et al., 2015).

Collaborative assessment in classroom has been predominantly adopted in cooperative learning environment, in which a test or project is completed collaboratively by group members under the framework of group-based assessment, with the entire group receiving a shared grade. To fulfill the required assessment tasks, students collaborate, exchanging their knowledge, skills, and expertise. The advantage of this evaluation method is to facilitate the development of their domain-specific knowledge, skills, and collaboration. In a study by Meseke et al. (2009), chiropractic students who participated in a group evaluation stated that collaborative assessment boosted their confidence and improved their critical thinking. When students cooperate to debate and discuss the exam questions during group assessment, it serves as a learning experience (Klecker, 2002; Zipp, 2007). Additionally, with a collaborative assessment, examiners reduce the time needed for grading students (Ahern, 2007; Augar et al., 2016)

Especially, with the assistive technology tools in smart educational environment, assessment in the classroom has significantly improved. Teachers have more opportunities to access the innovative assessment approach.

Few previous studies have proposed a novel assessment approach that integrates feedforwards and collaboration to facilitate online learning and teaching. To formulate an appropriate assessment approach in an interactive online learning environment, the instructors design the feedforward-based collaborative assessment approach (FbCA). Using the mixed-research methods, including qualitative, quantitative, and quasi-experimental approaches is also an outstanding facet of this study.

The following research questions were highlighted to clarify the paper's objectives:

1. What is significance of implementing FbCA in foreign language classrooms from students' perspectives?
2. How does FbCA influence students' learning engagement in the course and academic achievement?
3. What are students' expectations about changes in the assessment procedure to facilitate the effective implementation of FbCA?

Literature Review

Feedforward and Implementation of Feedforward in Classroom

Researchers and educators have recently given feedback in higher education more substantial attention in terms of practice and research developments (Dawson et al. 2019; Nicol & Macfarlane-Dick 2006; Winstone et al. 2017). Winstone and Carless (2020) reconceptualize feedback as a product provided to students that comprises information about their performance in the form of teacher

comments through the assessment. In contrast, from the perspectives of the socio-constructivist, feedforward is identified as a process in which learners receive the comments on performance, make a critical reflection, and take actions to improve their academic products (Reimann et al., 2019). The term "feedforward" is generated from the process of reflection and the undertake of actions to improve the achievement. To elucidate the techniques in assessment, Hattie and Timperley (2007) demonstrate the related notions, such as feed up, feedback, and feed forward. The term "feedforward" is associated with one stage of feedback; however, feedforward is emphasized as a process of moving forward to improve the products and obtain the goal.

A distinct conceptualization of feedforward is provided by Sadler (2010), connecting the term "feedforward" to transmission and teacher-focused techniques, including pre-assessment guidance and future-oriented remarks. In a phased approach, Walker and Hobson (2014) examined an assessment criteria workshop followed by an exemplar grading task, both designed to contribute to the module's summative assignment. Feedforward is recognized as a reflective tool that empowers students to extend their thinking and performance beyond the objectives of modules (Crook et al., 2012; Calonge et al., 2013). Correspondingly, through feedforward, learners not only have opportunities to reflect on their knowledge, but also enhance various skills such as planning ability, critical thinking capacity, or self- assessment practice competence. Students employ the strategies to analyze, monitor, and align their work with the requirements set by teachers (Robson et al., 2015; Huang, 2016).

Engaging in active learning through feedforward provides students with the chance to envision and shape their upcoming activities. Based on constructivist ideas, teachers can influence how their students learn and promote active engagement (Artvinli, 2012). The feedforward interview is explored as a method to generate effective behaviors adaption in learning process (McDowall, Freemann, & Marshall 2014; Grlitz, Schmidmaier, & Kiessling 2015). This approach is portrayed as a means of guiding future performance by facilitating goal-setting and enhancing self-efficacy. In a separate study, the use of a feedforward self-modelling video is applied to enact desired performance (Ste-Marie et al., 2011; Robson, Blampied, & Walker 2015). In Huang's study (2016), foreign language students listened to audio recordings of their previous oral exams transcribed and meticulously analyzed their performance in accordance with standards. They surpassed their teachers' feedback by identifying areas of excellence and potential improvement. According to Huang (2016), feedforward play a pivotal role in feedback, enabling students to determine what they need to do to enhance their own performance.

Collaborative Learning and Implementation of CA in Classroom

Collaborative learning is recognized as a learning phenomenon where individuals within a group or team collaborate on the same or distinct aspects of a shared task to achieve the ultimate learning objectives, including knowledge and skills (Strijbos, 2016). According to Strijbos (2011), the design of collaborative learning

must adhere to two fundamental principles: (1) individual accountability and positive interdependence, which are crucial in any collaborative learning environment; and (2) alignment of the eight core components for collaborative learning design identified by Strijbos et al., (2016). The Group Learning Activities Instructional Design (GLAID) framework developed by Strijbos et al., (2016) serves to assist educators in creating collaborative learning environments that are more likely to produce the desired learning outcomes by explicitly requiring teachers to design the alignment between collaborative learning components. The framework comprises eight elements, including interaction, learning objectives and outcomes, assessment, task characteristics, structuring, guiding, group constellation, and facilities. The assessment component of GLAID appears to be understudied (Strijbos, 2011; 2016; Forsell, Forslund Frykedal, & Hammar Chiriac, 2020). This study provides a comprehensive insight into the implementation of feedforward-based collaborative assessment in cooperative learning process from the stakeholders' perspectives.

Collaborative assessment is conducted in classroom with the goal of achieving cognitive outputs (e.g., knowledge), social outcomes (e.g., communication and collaboration skills), and motivational outcomes (e.g., attitudes (Strijbos, 2011). Sharing educational materials and cutting down on the amount of time needed for instruction and grading students are the advantages of implementing collaborative learning (Ahern, 2007; Van Aalst, 2013; Augar et al., 2016). Cooperative assessment is employed in collaborative learning environment to enhance effectiveness in academic outcomes. Nevertheless, Chiriac (2020) argues that peer learning will not be fully realized if evaluations convey the message that only individual performance is recognized and that collaborative effort is equivalent to cheating.

Collaborative assessment existing, often employed in parallel with individual tests in the classroom, is predominantly utilized in cooperative learning settings. In this approach, a test or project is collectively completed by group members within the context of group-based assessment, resulting in a shared grade for the entire group. In order to fulfill the assessment requirements, students engage in collaborative efforts, sharing their knowledge, skills, and expertise. The advantage of this evaluation method is to facilitate pupils develop their domain-specific knowledge and skills, and also impart valuable lessons in cooperation. According to a study by Meseke et al., (2009), chiropractic students involved in group evaluation reported increased confidence and improved critical thinking. When students cooperate to discuss the exam questions during group assessment, it serves as a valuable learning experience (Klecker, 2002, Zipp, 2007). Additionally, collaborative assessment has the benefit of reducing grading time for examiners (Ahern, 2007; Whitefield & Winchester, 2016).

However, several challenges hinder the successful implementation of collaborative assessment. The primary issue lies in the devaluation of individual success within a group-based evaluation framework. The fundamental drawback of group assessment is its occasional inability to accurately gauge individual achievement. Many examiners are skeptical about the accuracy of the shared score in a group in comparison with the score leaners would have achieved if they had

taken the test separately. Ewald (2005) acknowledges that the shared outcome of a group-based performance is not an accurate or reliable predictor for the individuals' evaluation. In an experimental study by Nafziger and Meseke (2010) with group quizzes conducted in a neuroanatomy course, the authors discovered no significant difference in the grades of the final examination between the two control and experimental groups although students doing the questions jointly achieve the better results than the control group in the progress tests. This adds further evidence to the argument that group assessments often fall short in measuring individual achievement.

While existing studies shed light on collaborative and feedforward-based assessments and their impacts on academic performance, there has been limited integration between collaboration and feedforward assessment. This study aims to bridge this gap by exploring the implementation of feedforward-based collaborative assessment for foreign language major students in higher education.

Methodology

Research Design

The mixed-method research incorporating quantitative, qualitative, and quasi-experimental approaches was undertaken to ensure a general view of the issue and specific insights (Howard, 2019). Questionnaires were handed out to collect the quantitative data. The answers from the in-depth questions and interviews provided the detailed information for the qualitative data. The techniques for interview are not only the direct inquiries in which students reveal what they themselves thought and did, but also the exprience-based questions (Hard et al., 2016). To ensure the reliability of the students' revelation, the interviews were conducted after the course when the assessment completed and the results were announced. The ethical problems were addressed with a participation agreement sheet covering participant's consent to involvement in the survey. The author asserted that all the information is kept confidential with the hidden names or codes. The Paired -Sample test will be conducted to examine student academic performance in the control and experimental groups. The Paired-Samples t-test is a statistical method used to determine whether there is a significant difference between the means of two related groups.

Participants

The study included 306 first and second-year students from the English department at a university in Hanoi. These students were enrolled in the general English course during the academic year 2021-2022, along with six teachers from the English department. Of the students, 29.1% were male, and the rest were female, with ages ranging from 20 to 22 years. Following agreement with other teachers, the students were divided into two groups: control and experimental groups, representing FbCA-based classes and traditional assessment-based classes.

The data supporting the study's findings are available upon request from the corresponding author, but they are not publicly accessible due to privacy and ethical considerations.

Instruments

Questionnaire

On the basis of the research questions, literature review about feedforward-based assessment and collaborative assessment, the author generated the questionnaire to collect the quantitative data. The questionnaire was designed consists of 29 items. In this study, the main content of the questionnaire survey covers four sections following: Background information (10 questions); Students' evaluation towards the significance of FbCA (15 questions), the influence of FbCA on student learning engagement in the course (2 questions), the influence of FbCA on students' academic achievement in the course (4 items). The options of each answer were formulated based on the 5 – Likert scale with 5 levels: Strong Agree – Agree – Neutral – Disagree – Strongly Disagree.

In-depth questions: To provide more information and details for the answers in the questionnaire the in-depth questions were exposed to participants.

(1) How beneficial is the FbCA online assessment implementation in your course? Explain and provide more evidence.
(2) How does your learning engagement and academic achievement change when applying FbCA? Clarify your ideas.

Observations and Reflection

The author observed and took students' learning attitude, contribution, engagement, and feeling in the classroom into consideration, and noted in the reflection diary to obtain the data for the second study question connected to learning engagement in the classroom.

Interview

For the third research question related to students' expectations about changes in assessment mechanism to ensure employing FbCA effectively, data was collected through interviews with both students and instructors. The researcher required students to clarify the following queries to address the research question:

(1) What challenges are encountered in implementing FbCA, and how can they be addressed for improvement?
(2) What are students' expectations about changes in assessment mechanism to ensure the effective implementation of FbCA?
(3) What measures should teachers and students take to ensure academic integrity in FbCA?

Tests

Tests consist of pretest and post-test. Pretest is provided to student to check the initial knowledge before the intervention of FbCA in control and experimental groups. Post-test is the final test conducted at the end of the course in order to check students' academic achievement.

Data Collection

Data for the study were gathered using a mixed-methods approach integrating qualitative and qualitative approaches. Two ways of data collection were used by the researcher: giving out questionnaires to participants in-person in the classroom, or using other tools. The researcher then tallied the number of respondents who selected each option and displayed the results as a percentage. Direct communication (face-to-face) or indirect communication were the two methods of interviewing the subjects (via social networks or mobile phones). Direct talks were noted, and then transcribed.

Data Analysis

To realize the aims of the study, quantitative and qualitative research methods have been used. The quantitative data were analyzed through descriptive statistics IBM SPSS 25.0 software. The demographic information of the participants was analyzed, based on the frequency descriptive test. Exploratory factor analysis (EFA) was implemented to explore a satisfactory reliability of dependent variables.

The data about students' evaluation towards learning objectives and challenges through FbCA implementation will be treated through descriptive test. Independent-samples T-test will be used to compare the difference between students' learning engagement in classes with the implementation of FbCA and without any intervention. The Paired -Sample test will be conducted to examine student academic performance.

The coding technique "Auto-Coding" was used to treat the qualitative data. Auto Coding finds text passages, selects a specified amount of text, and then codes the passage with a previously selected code. The information collected from the in-depth questions, interviews, and reflection notes was sorted based on the repetition of key words in context; comparison and contrast, metaphors, and analogies must be gathered into codes and common themes (Gibbs, 2010; Bernard & Ryan, 2010).

Description of FbCA

Feedforward-based collaborative assessment was implemented in a general English course at foreign languages department at a university in Vietnam with the assistance of Skype, Zoom, Google docs and other technological tools. This application transpired during the first semester of 2021-2022 academic year. The course spanned 15 weeks encompassing both theoretical and practical sessions,

featuring two principal assessments: a progress test and a final test. The progress test, constituting an integrated assignment, was evaluated through FbCA approach. This test involved a combination of reflection diary and oral presentation, structured across three stages: initial manuscript submission, paper revision based on the teachers-peers' feedforward, presenting the final outcome and submitting the reflection diary. The instructor introduced the topic at the beginning of the course and organized the class into groups of 3-4 students. This group size is appropriate for the task distribution among members. Besides, the teachers and leaders could observe and manage the activities easily. Leaders of each group randomly selected topics related to the lecture content. The teacher provided relevant documents and materials to each group to gather information and knowledge. Collaboratively, group members discussed, allocated tasks, and carried out their responsibilities. In the third week, all groups submitted initial versions including the topic outline, introduction about the group, detailing work distribution, and the group's plan. Upon receiving submissions, the teacher reviewed and offered feedback, serving as a feedforward for students to revise and align their work with the lecture content and course requirements. Utilizing feedback from both teachers and peers, group members engaged in discussions and took steps to fulfill the assignment. The adaptation process, individual contributions, and plans for editing the task were documented in a reflection diary for each group, which was attached to the final presentation. The teacher used the presentation and reflection diary to evaluate the final product of the groups.

Results and Discussion

English-majoring Students' Evaluations of the Significance of FbCA

The results from Table 2 illustrate the beneficial significance that FbCA brought about in terms of skills development, critical reflection, collaboration, and learning motivation. Particularly, the first ranks lie in the benefits like promoting students' group-working skills (M=3.98, SD=0.932), developing students' problem-solving skills (M=3.94, SD=0.912), upsurging student learning motivation (M=3.80, SD=.925 and empowering active learning (M=3.80, SD=0.854). These items received the positive evaluation from many students who realized that FbCA developed their group-working skills since they collaborate and together think the ways to address the issues. A high number of participants highly appreciated the role of FbCA in transmitting the shared knowledge, inspiring collaboration and cooperation, increasing self-evaluation and peer assessment, enhancing interaction among students with the values M=3.73; 3.55; 3.52; 3.76 respectively, and the values of Std. Deviation are higher than 0.70. This figure dedicates that there is a great disparity in the options the participants chose.

Successively, the significance of FbCA is illustrated in reinforcing students' communication skills; boosting critical thinking skills; improving students' learning outcomes; improving planning skills and giving decision with the values of means at 3.46; 3.42; 3.39, and 3.39 correspondingly. The items with the lowest

agreement are enhancing students' critical reflection, rising students' creativity, and reinforcing students' confidence.

Table 1. Students' Evaluations towards Benefits of FbCA

	Minimum	Maximum	Mean	Std. Deviation
Enhancing students' critical reflection	1	5	3.08	.903
Reinforcing students' communication skills	1	5	3.46	1.026
Promoting students' group-working skills	1	5	3.98	.932
Boosting critical thinking skills	1	5	3.42	.863
Transmitting the shared knowledge	1	5	3.73	.754
Developing students' problem-solving skills	2	5	3.94	.912
Improving students' learning outcomes	1	5	3.39	1.125
Rising students' creativity	1	5	2.97	.983
Inspiring collaboration and cooperation	2	5	3.55	.752
Improving planning skills and giving decision	2	5	3.39	.867
Increasing self-evaluation and peer assessment	1	5	3.52	1.020
Upsurging student learning motivation	2	5	3.80	.925
Enhancing interaction among students	2	5	3.76	.992
Reinforcing students' confidence	1	5	2.90	.923
Empowering active learning	2	5	3.80	.854

In addition, in the in-depth questions, participants acknowledged that they highly approved FbCA because in addition to getting more shared knowledge with less time spending on reading materials they have more chances to reinforce their skills and ability that they could not receive when performing the tasks individually. Also, students admitted that involvement in the FbCA activities made them more active in learning. This is really a dynamic learning environment that constantly stimulated them to take academic actions in order to obtain the ultimate goals of their group. In the interviews with the questions relevant to the significance of the FbCA on student learning motivation, students revealed that FbCA practice are beneficial and inspire them to learn constantly. FbCA prompts them to be more active and autonomous to obtain the ultimate academic objectives. Cooperation makes the assessment process more convenient and more effective, so they have more motivation to engage in learning. They can create our own learning path to identify what they should do next, what should not, what should be changed, and how do they meet the requirement from teachers. This practice made them go beyond emphasizing on the current mistakes. *"We have to focus on how to solve the problems, and adapt in a collaborative learning environment. We can evaluate the others and self-evaluate our academic performance*." (L.B., female).

The qualitative data demonstrate that students' willingness to engage in the activity to discover the most suitable solution to challenges was significantly improved. Student H.N acknowledged *"Before, I was so afraid of being involved in problem-solving tasks in classroom, especially, in real situations, because we cannot make any response promptly or I was too embarrassed and nervous to*

think the language and ideas immediately." After embarking into the FbCA, students feel more confident because they had more chances to interact with the others. The discussion and communication are meaningful and interesting. This helps students revise the old knowledge, look at their performance to self-evaluate themselves and make the vital changes.

Student L.A. said "*Problem-solving skills are crucial for learners. Now we enhance our skills through the activities*". Student perspectives about the assessment are various, but all emphasize one significant influence of FbCA that makes students more confident to participate in the social and community activities. N.T. (23 years) told that before there had been many web pages of academic or voluntary activities in communities or institutions on social network. However, we did not dare to enroll in them because the lack of knowledge and confidence. After experiencing the FbCA, we gained the strategies and skills to react in public activities, so we felt less nervous. H.K said that practice makes perfect is a true in this case.

The Influence of FbCA on Learning Motivation and Academic Achievement

Students' Evaluations towards Learning Motivation in FbCA-based Classes Compared to Traditional Assessment-based Classes

Table 2. Learning Motivation in FbCA-based Classes and Traditional Assessment-based Classes

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
V1	Equal variances assumed	12.983	.000	-2.596	304	.010	-.183	.070	-.322	-.044
	Equal variances not assumed			-2,596	291,413	.010	-.183	.070	-.322	-.044

As it can be referred from Table 2, The Sig value of Levene's Test is lower than the preset (0.000<0.05). As a result, the independent t-test is analyzed, based on the value of Equal variances assumed. Obviously, that the value of Sig. (2-tailed) is at 0.01 less than the significance level $\alpha = 0.05$. This result came to conclusion that there is a difference between learning motivation in FbCA-based classes and traditional assessment-based classes. The difference is *slight with the value of* Mean Difference at -0.183.

The in-depth questions revealed students' opinions about their learning motivation in FbCA-based classes. They unfolded that they had to opt the learning approaches to adapt to the particular assessment method that teachers informed from the beginning of the course. FbCA requires students' collaboration and problem-solving ability to address the issues or feedback teachers found in their tests, and to accomplish the tasks. The duties of students in FbCA must go beyond recognizing the mistakes in comments by teachers. They had to make reflection, planned specific steps to review, edit, and complete the final academic product "*We feel that our responsibilities are twofold. With respect to feedforward, we not only have to look back to the feedback, but also have to look forward to the next procedure to improve the assignment*." In terms of collaborative assessment, there need to be the effort by teams, the attempt of each individual, but also, are of importance. Consequently, students found their responsibility in autonomous learning and cooperative performance should be urged, or their engagement into academic activities must be enforced "*We think that our learning motivation has increased since the assignment volume was more enormous and team-working liability was more highly required. We must constantly keep moving forward, we did not have rights to stop or delay carrying out the tasks*". Additionally, thanks to collaboration and sharing work, students could lessen the difficulty and obstacles. If students did not feel disappointed and stressed with the work, they had more interest and motivation in work.

The data from the observations in the classroom and reflective diary after the course indicate that the number of students were engaged in contribution to the lessons and raised their voice to answer questions in FbCA-based classes is significantly higher than in the traditional assessment-based classes. The number of students who accomplished their reflective diaries and tasks in response to each teachers' requirement, which were intended to grade students' performance and contributions, was different from the conventional one. In the reflective diary, students take notes of the steps and procedure for editing the assignments based on the teachers' feedback, in which the tasks of each person will be detailed. The diary as a portfolio provided teacher the information on how the student addressed the comments, how they assigned their tasks to each member, and how they planned the steps to accomplish their product. The teacher followed and kept track with the performance of each group, so the students were motivated to perform their tasks properly.

The Effect of FbCA on Student's Academic Achievement

Paired -Sample test was utilized to examine the difference between the effect of FbCA on student's academic achievement in the control and experimental groups. A hypothesis was proposed: there is no difference between academic achievement between the experimental group involved in FbCA activities and the control group without the intervention.

Table 3. The Effect FbCA on Student's Academic Achievement in the Control and Experimental Groups

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Dv	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pretest Scores of control and experimental groups	.007	1.016	.082	-.156	.169	.080	152	.937
Post-test Scores of control groups	-.386	1.225	.099	-.581	-.190	-3.892	152	.000
Post-test Scores of experimental groups	-.451	1.390	.112	-.673	-.229	-4.012	152	.000
Post-test Scores of control and experimental groups	-.843	1.401	.113	-1.067	-.619	-7.445	152	.000

As can be seen from Table 3, the Pretest Scores of control and experimental groups are not different with the value of Sig. (2-tailed) at 0.937. This illustrated that students from 2 groups took the place- tests with the similar scores. These results indicated valuable input conditions for carrying out the FbCA intervention experiment. The Sig. value of 0.000 lower than 0.05 in the Post-test Scores of the control and experimental groups shows a little difference in the scores of the experimental group and control group. The hypothesis that the group utilizing FbCA and the group not using FbCA in learning achieve the same academic levels of success is, therefore, rejected. Higher average scores (Mean=7.15) in comparison to the group not receiving support from the FbCA (M=6.7) clearly show that students from experimental groups made academic improvement with the intervention of FbCA.

Changes in Assessment Mechanism to Ensure Academic Integrity and Employing FbCA Effectively

In order to ensure the reliability and adaptability of feedforward-based assessment (FbCA) in a collaborative learning environment, it is essential to address certain issues within the assessment process. It is imperative for all stakeholders, including instructors and students, to actively participate in its implementation and voice their concerns regarding the shortcomings of the assessment method. Subsequently, recommendations can be put forth to enhance academic integrity and effectively utilize FbCA.

With regard to the administration and execution of assignments, students have stressed the importance of clear guidance for FbCA right from the outset of the course. This ensures that students are well-prepared and have specific plans for each stage of the assessment. Ambiguity in the teacher's intentions or unclear instructions can significantly hinder the implementation of FbCA, leaving students feeling uncertain about their actions. The provision of clear instructions for FbCA

is aimed at making its implementation feasible and effective. Furthermore, maintaining regular reflections on group activities is crucial to promptly address any issues and ensure the progress of the project.

In terms of effectively implementing FbCA, students highly value the role of feedforwards in assessment practices compared to feedback-based assessment. They believe in the effectiveness of feedforwards because learners are actively engaged and collaborate to support each other, ensuring a smoother group dynamic with specific plans. However, teachers should closely monitor and support these activities to assist learners when they encounter difficulties. Additionally, teachers should conduct frequent assessments to ensure that the assignment is progressing without conflicts or performance issues. Keeping open communication with group leaders is vital to stay informed about the assignment's status and provide guidance and control.

To maintain academic integrity, it is imperative to implement FbCA in an environment free from cheating. To prevent misconduct in FbCA, teachers must be able to accurately assess the quality of the group's work and the capabilities of each member. It is worth noting that some less proficient students may exploit the collaborative assessment nature, relying on the group's shared score to avoid tasks and expect higher-proficiency students to complete the work for them. This issue can negatively impact responsibility, group cohesion, and overall productivity. Students have suggested that teachers provide confidential participation reports, allowing each student to assess the contribution of their peers more accurately, thus promoting fairness in evaluations.

Discussion and Recommendations

Pertaining to students' evaluation toward the significance of FbCA, it can be said that FbCA is beneficial in upsurging student active learning, empowering active learning, transmitting the shared knowledge, inspiring collaboration and cooperation, increasing self-evaluation and peer assessment, enhancing interaction among students, reinforcing students' communication skills; boosting critical thinking skills, improving students' learning outcomes, and improving planning skills. These findings are consistent with the studies by Crook et al., (2012), Calonge et al., (2013), Robson et al., (2015) and Huang (2016). Obviously, the way teacher teaches and assesses influences the way students learn and perform. With the comments and requirements for the assignments, students must collaborate to find the questions to the problems. They must be proactive and collaborative in their work to accomplish the tasks. The role of student becomes centered, which emphasizes that learners are held liable for designing their learning activities to adapt to the new assessment. Through these activities, they can improve knowledge, skills and learning attitudes.

On the basis of correlation between FbCA and learning motivation levels and academic achievement, the data reveal that FbCA has a positive influence on learning motivation. This result is referred by increased learning motivation levels in students' learning. Particularly, students took more time to engage in the

learning activities in FbCA-based classrooms than in the traditional ones. These findings coincide with the investigations by Meseke et al., (2009), Klecker (2002), Zipp (2007), and Calonge et al., (2013) that manifested that CA is much more than individual or peer assessment in terms of motivation. When engaged in a collaborative activity, students must twofold their efforts, the effort for the self and the effort for the whole group. Apparently, motivation might be generated by internal and external factors such as high grades, appreciation from teacher and friends, rewards, responsibility and even hobby or passion.

Pertaining to the correlation between FbCA and academic achievement, the study reveals that using FbCA has positive influence on academic achievement. These results are in accordance with the studies Strijbos (2011), Crook et al., (2012), Calonge et al., (2013), Hammar Chiriac, (2020), and are in contrast with the investigation by Ewald (2005) and Meseke (2010) who found that AC is not a reliable predictor of academic achievement for individuals, even, is a cheating tool in learning. Apparently, FbCA with the feedforwards-based activities that are performed with collaboration of the group members, brings about many benefits. However, to optimize the effect of the assessment approach, there need to be strict disciplines, honest, and responsibility amongst group members. If not, FbCA causes negative impacts, for instance, cheating, argument or irresponsibility. In this study, teacher conducted the assessment project performed by student under the control of teacher, and there is always the timely reflection from students and the supervising from teacher, so, students had the good academic performance.

The study also sheds light on barriers existing in enacting FbCA in online learning setting. Drawing on interview data, the barriers constitute internal and external ones. The intrinsic barriers are mentioned, comprising unwillingness to change, learning habit, lack of IT competence, learners' attitude and autonomy, and individual knowledge, abilities and skills. The extrinsic encounters were conceived of the lack of appropriate online learning design and curriculum; learning and teaching facilities; students' performance management; online learning assessment; conflict between knowledge; and outcomes; and collaboration. Identifying the problems in using any IT-assisted tool in online learning is imperative for students and teachers to take comprehensive solutions promptly. It is anticipating the obstruction students can face and recommend the strategies that motivate students to keep progressive spirit in learning. This explanation coincides with the viewpoints of Barron (2014) and Wigfield and Eccles (2000).

To implement FbCA effectively in higher education environment, the comprehensive solutions should be recommended to facilitate the stakeholders, including teachers' attempt to illuminate the duties, assessment, and criteria that students had to base on to accomplish the project. The teacher also has to adapt FbCA to the current teaching-learning approaches and syllabus, understand students' difficulties they face and their expectation to facilitate them to align with the new assessment method. Additionally, students should make more effort to collaborate with the partners in the FbCA activities, frequently reflect the performance to adjust it properly and design it more impressive. University managers and administrators will formulate appropriate management and

education policies, creating well-designed activities in assessment process to ensure academic quality and integrity.

Conclusion

The paper concludes that the significance of FbCA are acknowledged in terms of developing knowledge, skills and practice, including upsurging student active learning, empowering active learning, transmitting the shared knowledge, inspiring collaboration and cooperation, increasing self-evaluation and peer assessment, enhancing interaction among students, reinforcing students' communication skills; boosting critical thinking skills, improving students' learning outcomes, and improving planning skills. FbCA has a positive influence on learning motivation. This result is illustrated through the increased learning motivation levels in students' learning. Particularly, students took more time to engage in the learning activities in FbCA-based classrooms than in the traditional ones. The study also investigates that using FbCA has positive influence on academic achievement.

Participants in interviews acknowledged that the significance FbCA brings about, however they manifested that the challenges in implementing come from intrinsic and extrinsic barriers, especially, risks from cheating and misevaluation. Teachers should change syllabus appropriately to adapt to this assessment approach. A constant reflection about the activities of groups should be prioritized to promptly address the issues and to ensure the project progress.

In this study, a new online evaluation model is presented, and its implications for collaborative learning settings are discussed. However, this study, like many others, has a number of drawbacks that may open for further investigation. The participant pool may have limited the results' generalizability in a specific context. Therefore, larger samples can be used in subsequent studies to increase the reliability of the results. In order to gain a better understanding of this application, more additional research will be done on how to implement this project in different multi-disciplines education environment in the future.

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