OPEN ACCESS | ORIGINAL ARTICLE
DOI: 10.47743/lincu-2024-si-0388

SENTIMENT ANALYSIS AS A TOOL FOR OPTIMIZING EDUCATIONAL STRATEGIES AND BUSINESS COMMUNICATION

Carina BRÂNZILĂ
Alexandru Ioan Cuza University of Iasi

Abstract

This paper explores the complex role of sentiment analysis, a natural language processing (NLP) technique, in various areas, with a particular focus on its application in education and business English learning and communication. Sentiment analysis, which involves extracting and classifying sentiments from text data, is increasingly used worldwide to look into public opinion, customer feedback, and market trends across industries. The paper highlights the potential of sentiment analysis in improving education. Specifically, it examines the integration of sentiment analysis into business English lessons at tertiary level, suggesting two lesson plans designed to equip students with practical skills in employing sentiment data for effective communication. The challenges of implementing such lesson plans are also discussed, alongside some broader implications of sentiment analysis in educational contexts.

Keywords: *sentiment analysis, Natural Language Processing, education, business English, communication, students*

INTRODUCTION

Sentiment analysis, also known as opinion mining, is a natural language processing (NLP) technique that involves determining and extracting

Received: 25 July 2024 | Accepted: 31 August 2024 | Published: 30 October 2024
LINGUACULTURE VOL. 15, SPECIAL ISSUE, 2024 – *Interconnected Learning and Teaching in the Post-Pandemic Era. Trends and Challenges in Teaching Foreign Languages*, edited by Oana-Maria Frențescu and Nalan Bayraktar Balkir
ISSN (print): 2067-9696 | ISSN (online): 2285-9403 | www.journal.linguaculture.ro

sentiments, attitudes, or opinions expressed in text data. The goal of sentiment analysis is to understand the subjective information conveyed in written or spoken language and categorize it into three different sentiment categories, typically positive, negative, or neutral.

Sentiment analysis involves several key components and processes, which are intrinsic to any language processing of a text. It normally starts with a piece of text used as input, which can come from various sources like social media posts, customer reviews, news articles, surveys, etc. The input can be in written form or audio form, as it can easily be converted into text format. The text data needs to go through pre-processing to clean and normalize the content, ensuring the analysis focuses on meaningful words and removing stop words, punctuation, and other irrelevant information. Sentiment lexicons or dictionaries play a crucial role at this stage, containing words or phrases with associated sentiment scores (positive, negative, or neutral), each word being assigned a score indicating the sentiment polarity.

The approaches to sentiment analysis may be rule-based or machine learning-based. Rule-based approaches use predefined rules and patterns to determine sentiment based on specific words or combinations of words. Machine learning approaches, on the other hand, leverage algorithms trained on labelled datasets to learn patterns and relationships between words and sentiments, enabling them to generalize to new data. Additionally, aspect-based sentiment analysis can be performed on specific aspects or topics within the text, analysing sentiments separately for different elements or themes present in the content.

The core task of sentiment analysis is to classify the overall sentiment of the text into categories such as positive, negative, or neutral, based on the analysis of words, phrases, or contextual information. The output is a sentiment label indicating the prevailing emotional tone or attitude expressed in the analysed text, which helps in understanding public opinion, customer feedback, or other subjective aspects conveyed in the data.

USES OF SENTIMENT ANALYSIS

Sentiment analysis has various applications across different industries because it has proven efficient in use. As Peterson states, “Researchers have found that

when emotions are provoked through words, video clips, photographs, or other means, they alter financial behaviour—even in completely unrelated situations" (Peterson, 9). In business and marketing, companies analyse customer feedback, reviews, and social media mentions to understand customer satisfaction and improve products or services, as "sentiment metrics can be used to predict price movements" (Tetlock, 56).

In finance, sentiment analysis helps analyse market sentiments, predict stock movements, and inform investment decisions. Peterson claims that "by better understanding the perceptions, preoccupations and concerns of market participants—their sentiments—traders can develop superior predictive models" (Peterson, 9). Social media platforms use sentiment analysis to track and analyse user sentiments, aiding individuals and businesses in understanding public opinion, as social media attention amplifies the amount of market responsiveness and value of services or products. Studies show that news events with high social media buzz lead to price increases and subsequent higher spending compared to news with less online attention (Peterson, 3). Moreover, "the impact of media on investor sentiment and stock returns appears prevalent across various asset markets" (Yuan, 548), and for quite a long time, as well: "has been found to exist since at least 1905" (Fischer, 82).

Sentiment analysis has also been seen as a transformative tool in the field of economics. By examining various types of data, this tool offers invaluable insights that help economic decision-making, may predict market trends, and even guide policy development in the long run. One of the most obvious areas is marketing analysis: by gauging public opinion towards specific companies or industries, it empowers investors to make better decisions. Also, by analysing reviews, social media posts, and surveys, economists can detect consumer sentiment, a key indicator of spending habits. This, in turn, can help companies develop their products or services. Furthermore, sentiment analysis can be applied to economic reports, news articles, and expert opinions to predict future economic trends.

It can also help manage companies' reputations, as businesses use sentiment analysis to monitor their public image, identify potential issues, and implement corrective measures before it is too late. In other words, potential economic risks can be identified as well by monitoring public sentiment and

market trends and monitoring economic trends in real-time, enabling rapid decision-making processes. This might be particularly important during economic crises when sentiment analysis can help evaluate public opinion in real-time, enabling effective communication and the implementation of efficient crisis management strategies.

In conclusion, sentiment analysis represents a data-driven perspective for understanding and even influencing economic dynamics worldwide. By analysing public sentiment, businesses can make better decisions, avoid risks, and deal with potential economic challenges in an effective manner. In customer support, a very important use of sentiment analysis, the tool evaluates the sentiment of customer queries or complaints, enabling companies to prioritize and respond effectively. Political campaigns and governments gauge public opinion on policies, candidates, and political issues using sentiment analysis. It also helps in managing product and brand reputation by monitoring sentiments in customer reviews and online discussions. It is valuable in tourism, customer service, marketing, advertising, human resources, education, etc. Even in more niche areas like healthcare, sentiment analysis may be of assistance: it helps analyse patient feedback, identify emotional responses, and improve the overall quality of care provided. Overall, sentiment analysis plays a significant role in extracting valuable insights from text data, facilitating the decision-making process in various industries and areas of activity.

SENTIMENT ANALYSIS IN EDUCATION

One of the fields that seemed loosely related to sentiment analysis in the beginning was education. However, the tool has slowly and surely entered the area of education, and there are various uses in this respect, as sentiment analysis has become a valuable tool for understanding and enhancing various facets of the educational process altogether. Its application in student feedback analysis is particularly promising, especially in the context of the increase of online teaching due to the COVID-19 pandemic. In fact, student feedback has become essential in this respect, and it very much helps the improvement of the teaching platforms and processes worldwide. "The new normal created by COVID disruption has accelerated the move toward online teaching," state authors (Garcia-Morales,1). By automatically categorizing student comments

into positive, negative, or neutral sentiments, educators can swiftly identify areas requiring improvement and acknowledge course components that are well-received. Moreover, the real-time analysis of student feedback during and after lectures offers instantaneous insights into student engagement and comprehension. Lifelong learning programs, established for instance at the level of the European Union, represent a much-needed answer to "the need for continual training, re-skilling and upskilling of citizens" (Jensen, 120) in relation to tertiary education. Feedback represents an important part of the lifelong learning process, and sentiment analysis has become a valuable tool in this respect.

Beyond feedback analysis, sentiment analysis has proven useful in monitoring student engagement and emotions throughout their learning experience. Its integration into Learning Management Systems (LMS) enables educators to track students' affective responses to course materials, discussions, and assignments, facilitating the identification of struggling or disengaged learners. LMSs represent systems "that incorporate hypermedia Smart Tutoring Systems and personalized student feedback" and are able to "increase self-regulated learning, motivation, and effective learning" (Saiz Manzanares et al., 109). Additionally, examining sentiment within educational forums and social media provides valuable data on students' overall experiences, stress levels, and satisfaction with the learning environment. In the context of increased interaction between teachers and students within Learning Management Systems (LMSs), such as Moodle, extensive research has been done on the subject, indicating that "collaborative learning facilitated through these virtual platforms can indeed help learning outcomes" (Yamada and Hirakawa, 12). In this context, online learning is definitely here to stay, and continuous feedback is required in order to amend and improve this particular type of education.

Sentiment analysis can be applied to review the course comments in massive open online courses (MOOCs), which could enable instructors to easily evaluate their courses (Dalipi, 32). More precisely, to optimize teaching practices, sentiment analysis can be used to assess student feedback on their teachers and the instruction received, identifying effective teaching methods and areas for improvement. Analysing classroom or platform discussions through sentiment analysis can further inform the adaptation of teaching approaches to better

support student learning. Research has indicated that "teachers should be able to effectively apply the theoretical and empirical insights on formative assessment and feedback strategies" (Narciss et al., 3). On a different note, sentiment analysis may have a contribution to enhancing student well-being. By detecting negative emotional states, such as frustration or anxiety, through the analysis of student communication or feedback, early intervention strategies can be implemented. This promotes a supportive learning environment and fosters future student success. Specifically for students, research indicated "a positive correlation between physical health status, resilience, and emotional support on the one hand, and psychological well-being on the other" (Liu et al., 43).

The application of sentiment analysis extends to teaching materials, curriculum, and generally with content development by investigating student reactions to specific materials and topics. This helps educators and curriculum developers refine their courses to align more closely with student preferences and needs. Additionally, analysing student perceptions of various learning resources informs the development of more effective educational materials. Sentiment analysis can also evaluate how students observe various learning resources, such as videos, articles, and textbooks, helping the development of more effective educational content.

CHALLENGES OF SENTIMENT ANALYSIS IN EDUCATION

Despite its potential benefits, the implementation of sentiment analysis in education is not without challenges. Accurately interpreting sentiment, particularly within the nuanced context of educational settings, is crucial. Privacy and ethical considerations related to data collection and analysis must be carefully addressed. To effectively use sentiment analysis, Natural Language Processing (NLP) techniques are essential. There are various tools available at the moment, some being free of charge and some requiring a subscription or a one-time fee. Some of the most popular tools are NLTK, SpaCy, and TensorFlow. They are mostly used for developing sentiment analysis models. Supervised learning algorithms, including Support Vector Machines (SVM), Naive Bayes, and also deep learning models like Long Short-Term Memory (LSTM) and Transformers, have been successfully applied in this domain, as well. Pre-trained models like

BERT and GPT have also shown promising results in sentiment analysis tasks within educational contexts. In fact, depending on the scope of the research and its relevance, any tool from the ones mentioned above could be applied and succesfully used.

Another possible use of sentiment analysis in education would be its actual use in lessons, for instance Business English lessons at tertiary level. Sentiment analysis represents a dynamic and practical approach to connecting theoretical language learning with real-world business communication, which is key to any language course. Explaining this tool to students may offer them a helpful skill to use in various professional contexts. It is, as shown above, highly relevant to the business world, as sentiment analysis is widely used to understand customer feedback, market trends, and improve brand reputation. Incorporating it into the teaching approach represents a direct application of language skills to real-world business situations.

Engaging in sentiment analysis also improves critical thinking and problem-solving abilities. While using this tool, students have to interpret data, draw conclusions, and develop strategies based on their own knowledge and perspective. This process introduces them to data-driven decision-making, an important skill in today's business environment. Moreover, by analyzing sentiments across different cultures and languages, students may have a better understanding of cultural nuances and how these influence communication, improving their cultural intelligence. According to Earley and Ang (2003,12), cultural intelligence is an individual's capacity to acquire and interpret information, evaluate it, implement effective strategies, and adapt psychologically to new cultural environments.

The use of sentiment analysis tools can also develop students' digital literacy, as it requires familiarity with technology and data analysis. More than language learning, such a learning experience provides students with practical skills in extracting meaningful information from textual data, which again may prove very useful when dealing with various business tasks. By incorporating sentiment analysis into a business English seminar, one not only teaches language skills but also prepares students to meet the challenges and benefit from the opportunities of the digital age.

Explaining sentiment analysis to bachelor students is essential to start

with and it involves simplifying the concept and providing real-world examples. The definition of sentiment analysis is basically: the process of using computational methods to determine and analyze sentiments (positive, negative, or neutral) expressed in written or spoken language. This is similar to understanding whether a review is positive, negative, or neutral based on the words used, as on touristic sites like TripAdvisor or booking. Real-world examples may include analyzing social media platforms to gauge public opinion, using e-commerce platforms to determine the overall sentiment towards any product, and even assessing public reactions to news articles or political figures. All three could be incorporated in a Business English lesson.

A BUSINESS ENGLISH LESSON PLAN USING SENTIMENT ANALYSIS

Students need to be explained that the components of sentiment analysis are lexicons and dictionaries: lists of words or phrases with associated sentiment scores, which are very practical in use. Also, it is very important to explain to students that sentiment analysis faces challenges in dealing with ambiguous language, sarcasm, and it is not sensitive to context. Engaging students with a group activity to analyse sentiments in a set of short texts might greatly help reinforce these aspects.

Any lesson employing sentiment analysis should ensure that students understand how to use this tool, and they learn how to interpret sentiments in text data of any kind. Students should be encouraged to ask questions, explore unclear aspects, whereas the teacher should provide recommendations for further reading or resources in further exploring sentiment analysis. The teacher should make use of real examples, case studies, and discussions that are relevant to economic contexts. The lesson itself should reflect real-life situations in order to make sentiment analysis more accessible and engaging for students.

The lesson plan below was employed with 3 different groups of students at a Faculty of Economics in Romania. All three groups of students responded well to the teaching approach and the final feedback indicated that they appreciated the lesson. The lesson plan can obviously be modified in order to suit the needs of the students, their level of English or digital skills, as well as their interest. Students in Management may have totally different interests than students in the Business Administration, for instance.

The objective of such a lesson plan would be for instance to understand how lexicon-based sentiment analysis, combined with aspect-based analysis, can be applied to analysing economic texts and opinions. These are particularly relevant to a student of economics, and the real-life texts have a recognized value in teaching foreign languages, especially for special purposes as in the case of Business English. For a general understanding, lexicon-based models 'allow researchers to readily determine which words and phrases contribute most to a change in measured sentiment' (Nazir et all, 2020), whereas aspect-based analysis 'helps to understand the problem of Sentiment Analysis better comparatively, because it directly focuses on sentiments rather than language structure' (Nazir et all, 2020).

The introduction of this topic to students should emphasize the relevance of sentiment analysis in economics, involving class and group discussions on how understanding sentiments in economic texts, such as financial reports, market analyses, or consumer opinions, can help students understand better the business world.

When creating an economic lexicon, instead of a generic sentiment lexicon, the focus is on introducing the idea of creating an economic sentiment lexicon, using examples of economic terms and phrases associated with positive or negative sentiments. Bearing this in mind, it would be helpful to discuss the impact of sentiments on economic decision-making and market dynamics.

In applying sentiment analysis to economic aspects, topics pertinent to economics should be selected, such as market trends, economic policies, or financial performance, and the teacher should find up-to-date economic-themed texts for analysis during hands-on activities in the lesson. These may include financial or economics news articles, economic reports, or even investment analyses.

The teacher would present a case study specific to the economic domain, for example, analysing sentiments related to consumer perceptions of a new economic policy or sentiments expressed in financial news about a particular industry, and discuss the economic implications of the sentiment analysis findings. This practical activity is the most important part of the lesson; in fact, and students should engage in pair-work or group-work in order to make the most of the topic selected and to communicate as much as possible in the

target language. During the hands-on activity, students should use the text provided in order identify and analyse sentiments specifically related to economic aspects. The given text or texts could make use of inflation rates, stock market performance, or consumer confidence. An open discussion should ensue on how sentiment analysis could influence economic decision-making, exploring the role of sentiments in investor behaviour, consumer spending, and policy responses. Students should be encouraged to reflect on the potential applications of sentiment analysis in economic research, financial planning, and policy formulation.

As an assignment or supplementary practice work, students could analyse sentiments in economic texts, such as financial reports or economic commentaries, and prepare a brief report on the economic implications of sentiment patterns. The feedback should then focus on students' ability to apply sentiment analysis concepts to economic contexts, engage in discussions related to economic decision-making, and critically analyse economic sentiments.

Overall, this lesson plan aligns content with the interests and focus areas of economics students, making it appropriate and interesting for their academic needs.

AN ALTERNATIVE LESSON PLAN

In the following we will provide an alternative example of a lesson plan, used with two different groups of students in economics. By incorporating such lessons into a Business English course, one can offer students the chance to exercise much needed practical skills in analyzing and actively using sentiment data for effective business communication.

This alternative lesson plan focuses on leveraging sentiment analysis for effective business communication, aiming to provide students with the practical knowledge and skills directly applicable in the business world. The primary learning objectives are, once again, to understand the concept of sentiment analysis and its applications in business, and then to analyze in class social media posts and customer reviews using sentiment analysis tools, while developing effective communication based on sentiment analysis.

To begin with, the lesson would introduce sentiment analysis, defining its significance in business communication and presenting real-world examples of

companies using sentiment analysis effectively. The basic principles of sentiment analysis, including categorization into positive, negative, and neutral sentiments, are to be explained in order to create a foundation for the students' understanding.

Following the introduction, a hands-on activity was conducted, where students were divided into groups and provided with a selection of social media posts or customer reviews related to a specific company (a local hotel) or product (a local brand of sweets newly introduced on the market). Each group manually analyzed the sentiment of the posts or reviews, categorizing them accordingly. Afterwards, the students were presented a simple sentiment analysis tool, with a demonstration on how to use it to analyze the same data set. This exercise allowed students to compare the results of manual and automated analysis, which was followed by an open-class discussion on the strengths and limitations of each method.

The lesson continues with a case study analysis, where a local company that has successfully used sentiment analysis to enhance its business is presented. The students analyzed the company's approach, discussing the potential impact of its actions, which helped to contextualize the practical applications of sentiment analysis in real business scenarios.

Next, the lesson focused on the use of effective communication based on sentiment analysis insights. Students were shown how to use these insights to tailor their messages to the audience's sentiment, with examples showing the impact of such strategies. Role-play scenarios were conducted afterwords and students practiced writing emails or social media posts that incorporated the sentiment analysis findings, allowing them to apply their knowledge in a practical setting.

Alternatively, students could also submit a written report analyzing the sentiment of a given set of social media posts or customer reviews or they could create a presentation summarizing their findings from the group activity and suggesting strategies to improve business communication based on sentiment analysis.

The lesson also tried to improve the teaching process by encouraging students to explore online tools that offer free sentiment analysis APIs, such as those provided by Google Cloud Platform or Amazon Web Services. Advanced

sentiment analysis techniques, such as aspect-based sentiment analysis, which allows for the identification of specific sentiments toward different product features or company attributes, were also mentioned. These were used with two different groups of students, one each.

In the end, the lesson included a discussion on the ethical implications of using sentiment analysis, mentioning concerns such as privacy and potential biases in the data collected.

This lesson plan tried to equip students with the skills and knowledge needed to apply sentiment analysis in real-world business communication, enabling both technical proficiency and ethical awareness, as well as communication in the target language.

CHALLENGES

Even if the above lesson plans were devised to be engaging and also accessible, students may face certain difficulties during such lessons and the ones encountered in practice will be highlighted in the following.

As with any lesson involving the use of laptops, tablets, computers and particularly specialized software like natural language processing, technical issues may occur, especially during hands-on activities involving the actual use of sentiment analysis tools. To avoid this, an alternative non-technical hands-on activity that focuses on visual and collaborative aspects should be prepared beforehand, so that everyone can take active part in the tasks.

Complex terminology in lexicon-based sentiment analysis might also seem problematic, so it would be best to use simple and relatable language, offer clear definitions and examples from the beginning, and encourage questions to clarify any confusion. Students may struggle if they have little prior knowledge of sentiment analysis or lexicons, which was the case with all three focus groups analyzed for the purpose of this article. To prevent this problem, the teacher may begin the lesson with a brief overview and make sure that the main concepts are well-explained, again encouraging students to ask questions in order to clarify all possible issues.

Another challenge such a lesson might face is the classic one when it comes to group work: group dynamics could result in uneven participation, with some students dominating discussions while others don't engage in the

activities. Closely monitoring group dynamics and encouraging equal participation, even assigning specific roles within work-groups can help distribute responsibilities. It is very important that all students participate actively in the lesson, particularly since the focus is also on communication.

Identifying features within a text may also prove difficult for some students. To prevent that, the teacher should provide clear examples and try to guide students through the process, also encouraging peer-to-peer support within groups. If the assignment or an alternative practical activity includes presentation, these may also prove to be a challenge, so perhaps offering suggestions for presentation formats and emphasizing that clarity is more important than complexity can help students in this respect.

Considering this is a lesson that relies on technology, the lack of skills of certain students must be taken into account, otherwise some students might feel excluded. To prevent this, the teacher should make sure that technology is user-friendly, and the sentiment analysis tools are accessible. Providing enough support and emphasizing the importance of other skills and contributions in non-technical activities might prove useful. Additionally, more tech-savvy students could be equally distributed among groups, making sure that everyone gets the help they need.

Limited critical thinking during group discussions and lack of experience with reflection could also become an issue during such lessons. To help with this, thought-provoking questions and scaffolded discussions might come in helpful. Also, the teacher should provide prompts for reflection so as to encourage students to express their thoughts and ideas.

Time management may be a problem both for teacher and students, so the activities should be planned within a realistic timeframe. The teacher must also be flexible in adjusting the pace of the activities based on students' needs.

By anticipating these potential difficulties and adjusting the lesson plans, before the lesson or even during it, teachers may create a more supportive learning environment, enabling students to overcome all challenges and engage effectively with the material provided. Addressing these issues would abviously require additional teacher support, simplifying technical aspects and addressing any technical difficulties, also extending time if needed, trying to foster a

positive class atmosphere, where all students can contribute and learn at their own pace.

CONCLUSIONS

To conclude, sentiment analysis has emerged in the past decades as a powerful tool for extracting and interpreting subjective information from textual data, with significant implications indiverse fields. By quantifying sentiment, this natural language processing tool offers invaluable insights into public opinion, market trends, and, as highlighted above, even educational processes. Its capacity to categorize text as positive,negative, or neutral empowers businesses, investors policymakers and educators, as well, to make data-driven decisions which are in line with audience sentiment.

In the educational sphere, sentiment analysis has proven useful in enhancing students' areas of strength and weakness in their learning process. By incorporating students' feedback in their activity, teachers may tailor instruction, develop teaching materials, and generally create a more supportive learning environment.

Furthermore, the integration of sentiment analysis into learning management systems helps with real-time monitoring of student well-being and emotions, allowing for early interventions in the case of those students facing academic or emotional challenges. This usually happens in larger campuses, preoccupied with students' wellbeing, and after the pandemic, this has become a priority worldwide.

While sentiment analysis offers considerable potential, challenges such as interpreting nuanced emotional expressions accurately, or addressing ethical concerns related to data privacy must be also taken into consideration. However, the development of natural language processing and machine learning are continually enhancing the precision and reliability of sentiment analysis, increaging its role as a valuable tool in various fields.

The lessons above proved to be a succes with the groups of students they were used with, and students' feedback was entirely positive. The challenges mentioned occurred in all three groups of students, although not all at once. They represent just a couple of examples and can be adapted to any learning needs and teaching circumstances. The sentiment analysis tool has proven useful in

education in more than one way and these lesson plans are examples of good practice in this regard.

Works Cited

Dalipi, Fisnik, et al. "Sentiment Analysis of Students' Feedback in MOOCs: A Systematic Literature Review." *Frontiers in Artificial Intelligence*, vol. 4, 2021, article 728708, https://www.frontiersin.org/journals/artificial-intelligence/articles/10.3389/frai.2021.728708/full. Accessed 8 June 2024.

Earley, P. Christopher, and Soon Ang. "Cultural Intelligence: Individual Interactions across Cultures", 2003, https://doi.org/10.1515/9780804766005. Accessed 8 June 2024.

Fischer, Dennis. "Investor Underreaction to Earnings Surprises and Overreaction to Product News in the Drug Industry." *Journal of Business and Economic Studies*, vol. 18, no. 2, 2012.

García-Morales, Víctor J., et al. "The Transformation of Higher Education after the COVID Disruption: Emerging Challenges in an Online Learning Scenario." *Frontiers in Psychology*, vol. 12, 2021, article 616059, https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2021.616059/full. Accessed 8 June 2024.

Jensen, Tore. "Higher Education in the Digital Era: The Current State of Transformation around the World Communication and Effective Teaching." *International Association of Universities* (IAU), 2019, https://www.iau-aiu.net/IMG/pdf/technology_report_2019.pdf. Accessed 9 July 2024.

Liu, Cindy, et al. "Identifying Predictors of University Students' Wellbeing during the COVID-19 Pandemic—A Data-Driven Approach." *International Journal of Environmental Research and Public Health*, vol. 18, no. 13, 2021, article 6730, https://doi.org/10.3390/ijerph18136730. Accessed 10 July 2024.

Narciss, Susanne, et al. "Promoting Prospective Teacher Competencies for Designing, Implementing, Evaluating, and Adapting Interactive Formative Feedback Strategies." *Psychology Learning & Teaching*, vol. 20, no. 2, 2021, pp. 261-278, https://doi.org/10.1177/1475725720971887. Accessed 9 July 2024.

Nazir, Anam, et al. "Using Placeholders." *EEE Transactions on Affective Computing*, 2020, ieeexplore.ieee.org. Accessed 9 July 2024.

Peterson, Richard L. "Trading on Sentiment: The Power of Minds over Markets. " Wiley, 2016, https://doi.org/10.1002/9781119219149. Accessed 10 July 2024.

Prozesky, Detlef. "Communication and Effective Teaching." *Community Eye Health*, vol. 13, no. 35, 2000, pp. 44-45. PMID: 17491962; PMCID: PMC1705977.

Tetlock, Philip. "Giving Content to Investor Sentiment: The Role of Media in the Stock Market." *The Journal of Finance*, vol. 62, no. 3, 2007.

Yamada, Yasuhiro, and Hirakawa, Masahito. "A Case Study of Analyzing Logs of LMS in Flipped Classroom." *Proceedings of the 2015 IIAI 4th International Congress on Advanced Applied Informatics*, IEEE, 2015, https://doi.org/10.1109/IIAI-AAI.2015.255. Accessed 10 July 2024.

Yuan, Yuan. "Market-Wide Attention, Trading, and Stock Returns." *Journal of Financial Economics*, vol. 116, no. 3, 2015, pp. 548–564.

BIONOTE

Carina BRÂNZILĂ is Senior Lecturer of Business English with the department of International Relations at the Alexandru Ioan Cuza University of Iaşi, România. With a PhD in teaching English as a foreign language through the lens of children's literature, she published on various topics, from teaching young students and teaching EAP, to the fluctuations of tourism in time of crises. She also worked for British Council for several years and holds several international qualificafions like Celta, Nile and BET. She is also the recipient of the Barr Mosenthal Award for 2021 for her research on remedial courses for undergraduate students of Economics.
E-mail: **carinabranzila@gmail.com**