

Academic Journal published by **SGH Warsaw School of Economics**  
and **Foundation for the Promotion and Accreditation of Economic Education**

# e-mentor

Number 4 (101) 2023

ISSN 1731-6758



**ICT in education**  
**Lifelong learning**  
**Business and technologies**  
**New trends in management**  
**Teaching methods and programs**

# Table of Contents

3 From the Editor

*Małgorzata Marchewka*

## ■ New trends in management

4 Art therapy from the perspective of management and quality sciences

*Jan Fazlagić*

11 Empowerment and the quality of superior-subordinate relationships in the international business environment

*Magdalena Stefańska, Gabriel Grabowski*

18 Integrated management system at higher education institutions: Case study from Poland

*Marta Tutko, Piotr Woźniak*

28 Bibliometric analysis of categories of sustainable development

*Agnieszka Bekisz, Aleksandra Sus, Rafal Trzaska*

39 Financial predictors of corporate insolvency – assessment of the forecast horizon of variables in models of early warning against corporate bankruptcy

*Paweł Antonowicz, Kamila Migdał-Najman, Krzysztof Najman*

45 Social responsibility at a university – students' perspectives

*Albena Vutsova, Martina Arabadzhieva, Todor Yalamov*

## ■ Teaching methods and programs

56 Improving teachers' classroom assessment practices: perceptions of teachers in the Ellebelle District of Ghana

*Abraham Gyamfi, Saranraj Loganathan, Rosemary Acquaye*

63 Navigating micro-credentials: An analysis of student needs, perceptions and skills development at a Slovenian university

*Igor Rižnar*

e-mentor

printed version  
of the open access academic journal  
[e-mentor.edu.pl](http://e-mentor.edu.pl)

**Publishers:**

SGH Warsaw School of Economics

&

Foundation for the Promotion  
and Accreditation  
of Economic Education

ISSN 1731-6758

**Editorial office:**

SGH Warsaw School of Economics  
Centre for Open Education  
al. Niepodległości 162  
02-554 Warsaw, Poland  
tel. +48 22 564 97 23  
fax. +48 22 646 61 42  
[redakcja@e-mentor.edu.pl](mailto:redakcja@e-mentor.edu.pl)

**Editorial Board**

prof. Maria Aluchna  
prof. Piotr Bołtuć  
prof. Ilona Buchem  
prof. Wojciech Dyduch  
prof. Charles Dziuban  
prof. Luciano Floridi  
prof. Andrzej J. Gapiński  
dr hab. Andrzej Kononowicz  
dr Jan Kruszewski  
dr Frank McCluskey  
prof. Don Olcott, Jr.  
prof. Ercan Özen  
dr inż. Marcin Piekarczyk  
prof. Sandeep Raha  
prof. Marek Rocki  
prof. Maria Romanowska  
prof. Waldemar Rogowski  
prof. Piotr Wachowiak

**Editorial team:**

Editors: Marcin Dąbrowski, Małgorzata Marchewka

Editorial Assistant and Content Editor:  
Katarzyna Majewska

Typesetting: Elżbieta Wojnarowska  
Cover design: Piotr Cuch

Journal website:

[Piotr Gęca, Krzysztof Kalamus, Łukasz Tulik](http://e-mentor.edu.pl)

*Journal with (140) points awarded by Poland's  
Ministry of Education and Science.  
Scientific articles are peer reviewed.*

Print: 700



Dear “e-mentor” readers,

I am pleased to present you the newest collection of articles presenting various studies on modern trends in education and business from the perspective of different countries. Readers primarily interested in pedagogy can reflect on the problem of improving teachers’ classroom assessment practices using data collected in Ghana and explore the idea of micro-credentials and its application at a Slovenian university.

The authors of two other articles focus on the topics that can attract readers from two fields: business and education. The first article is dedicated to the problem of integrated management system at higher education institutions, including in particular quality MS (compliant with ISO 9001), environmental MS (ISO 14001) and energy MS (ISO 50001). The second text deals with the issue of social responsibility at a university from the point of view of Bulgarian and French students’.

The part dedicated to new trends in business begins with a conceptual article including a comparative analysis of selected concepts of management and quality sciences with the field of art therapy. Numerous areas of overlap between art therapy and management are highlighted. In this part, readers can also find out about empowerment and the quality of superior-subordinate relationships in the international business environment, bibliometric analysis of categories of sustainable development, and financial predictors of corporate insolvency.

The strategy of internationalisation supported by the Ministry of Education and Science (Poland) with granted funds (RCN/SP/0361/2021/1) has resulted in an increase in the number of foreign submissions and a growing number of authors affiliated at foreign institutions. Our further efforts are focused on boosting the quality of published articles, increasing international visibility, enhancing the transparency of the editorial process, and modernising the website. I sincerely hope that the planned improvements will satisfy not only our readers, but also our authors and reviewers.

I would like to cordially invite you to co-create “e-mentor” with us by becoming a reviewer or by submitting articles for publication. “E-mentor” is an open-access journal available for free, both online and in printed form. All scientific papers are peer-reviewed and we provide free proof-reading of papers accepted for publication in our English issues. Every article gets an individual DOI registered in Crossref, and the journal is indexed in several global databases, including Web of Science ESCI and EBSCO. There is no publishing fee for the authors. Further details are available online at [http://www.e-mentor.edu.pl/eng/page/8/Info\\_for\\_Authors](http://www.e-mentor.edu.pl/eng/page/8/Info_for_Authors). Should you have any questions concerning publications in “e-mentor”, please contact the editorial team at [redakcja@e-mentor.edu.pl](mailto:redakcja@e-mentor.edu.pl).



Małgorzata Marchewka  
Editor



„Increasing recognition of „e-mentor” journal in the international academic community” – a project financed under agreement No. RCN/SP/0361/2021/1 from the the State Budget (54 000 PLN of total 59 000 PLN).



Jan  
Fazlagić

## Art therapy from the perspective of management and quality sciences

### Abstract

Art therapy is a field of activity with both practical and theoretical foundations although the latter are not precisely defined. Management and quality sciences, as well as economics, include management in the healthcare sector as one of their areas of interest. Despite a wealth of literature on the subject of management in healthcare, no in-depth research on art therapy as a specific form of delivery of the therapeutic process has been conducted so far. The aim of this article is to identify potential areas for further interdisciplinary research linking the field of management and quality with health sciences and education sciences (bearing in mind that art therapy is not a separate, autonomous scientific discipline). In order to achieve this we conducted a comparative analysis of selected concepts of management and quality sciences with the scope of the subject matter of art therapy, and as a qualitative method of literature review we chose the deductive method. The outcome of the study is the development of a proposed set of areas for further interdisciplinary research linking management and quality sciences with the sciences that include art therapy. The research findings presented here highlight numerous areas of overlap between art therapy and management and quality sciences, which hold potential for application in art therapy practice and theory.

**Keywords:** art therapy, interdisciplinary research, management and quality sciences, integration of research agenda, creativity

---

### Introduction

---

Art therapy is a form of psychotherapy that seeks to help clients experiencing adverse circumstances, illness or disability, addressing a person's social, emotional and mental needs. Management and quality sciences, on the other hand, are the disciplines of science concerned with establishing relationships between situations and the ways in which people behave at work, and their performance, providing recommendations designed to ensure maximum efficiency of individual and team performance. From a theoretical perspective, the specificity of art therapy lies in the fact that it is somewhat 'torn' between educational sciences, health sciences and psychology. Both management and quality sciences and art therapy share a common denominator – they belong to the field of social sciences, i.e. sciences that study the structure and functions over the history of a society, its culture, laws and the patterns of its development.

This paper discusses selected concepts that make up the body of knowledge in management and quality sciences in the context of their use within art therapy practice and theory, with the aim of filling the gap and encouraging both management and art therapy theorists and practitioners to integrate research and explore common research areas. The utilitarian purpose of this paper is to inform the art therapy community of the achievements of researchers in management and quality sciences, and to encourage art therapists to broaden their research interests beyond the literature in art therapy and psychology. This approach is not unprecedented: in management and quality sciences, there is extensive use of knowledge from psychology, cultural anthropology, neuroscience, sociology, etc., which only proves that management and quality sciences are inclusive sciences - sciences that draw inspiration and use research results from outside the hermetically defined boundaries of this scientific discipline. It seems reasonable that art therapists, following in the footsteps of management science theorists and practitioners, should also become more involved than they have been to date in using research findings from management and quality sciences. According to the author,

## Art therapy from the perspective of management...

---

this is to strengthen the further development of art therapy, both in the area of practice and theory, as well as in strengthening the argument for art therapy to become an independent scientific discipline, as postulated by many researchers, including the recently deceased Professor Wita Szulc, a precursor of Polish art therapy (see: Szulc, 2010; Szulc, 2014).

Management sciences are classified as social sciences, since they involve the actions of people – P. F. Drucker puts it more precisely: “Social sciences, including management, are concerned with the behaviour of people and the institutions created by people” (Sudoł, 2022). There is no doubt that in management sciences the object of analysis is the organisation, whereas in art therapy the activities of the art therapist concern the individual. However, if we look deeper into the field of interest of management (and quality) sciences we discover that within this discipline there are studies and analyses concerning the interaction of individuals with organisations, including: employee creativity, innovation, knowledge management, employee motivation, work-life balance and many others. The research scope of management and quality sciences is concerned with making work (individual and team) in organisations as efficient as possible. On the other hand, from the perspective of art therapy effectiveness is the achievement of therapeutic goals by the client. At the same time, it is worth mentioning that management and quality sciences take as their area of interest not only a collective, team or group, but also the individual in the organisation. Moreover, in management and quality sciences there are many studies regarding the interaction of individuals (rather than groups), e.g. between team leaders with team members, between colleagues within a team, members of an organisation and its external stakeholders, etc. In all these cases, knowledge of the human subject, deeply humanistic knowledge, is applied. In contrast to economics, management and quality sciences – like art therapy – make large-scale use of qualitative methods in scientific research.

---

### Management and quality sciences and art therapy

---

Management and quality sciences is a scientific discipline in the field of:

- economic sciences (e.g. Doctor of Economic Sciences in the field of management and quality sciences),
- humanities (e.g. Doctor of Humanities in management sciences).

According to the earlier classification in Poland, management was the domain of economic sciences, hence this discipline was referred to as “organisation and management”. Today, an interdisciplinary approach to management, especially the use of psychology and other social sciences and humanities, has resulted in a dichotomous approach to management sciences. Management sciences are classified as social

sciences, i.e. sciences concerned with the study of the structure and function of the history of society, its culture, laws and the patterns of its development. In addition to natural sciences and humanities, they are classified as empirical sciences. These sciences deal with society and social phenomena and processes viewed from different perspectives (e.g. sociology, social psychology, ethnography, law, political science, or management, to name but a few).

Management and quality sciences can provide art therapists with a wide range of concepts and research methods that have not yet been explored as worthy of being used in therapy. These include issues related to the management of the therapeutic service delivery process, service design, and also the use of knowledge of leadership in therapeutic work. As Wita Szulc (Szulc, 1993) notes, the term ‘culture’ etymologically derives from the classical antiquity, and the Latin word *cultura* originally meant the cultivation of farmland. In the intellectual sense, it was first used by Cicero in his philosophical writings when he introduced the phrase *cultura animi*, which literally means ‘cultivation of the mind’. Psychology treats culture as a set, which includes above all an individual’s behaviour, thoughts, feelings and reactions from the perspective of psychology as a set of rules and behavioural motives, forms of expression, set of orders and forms of positive and negative expressions, as well as assessments and judgements. From the perspective of sociology, on the other hand, culture is a certain separable aspect of the life and activity of human society, which is connected with the sphere of needs and experiences of a non-direct nature (Szulc, 1993, p. 15). The term ‘therapy’ in Polish means a treatment or a therapeutic method. In classical Greek, the word refers to nurturing, because it means caring for someone, taking care of someone, and only in the third place – to engage in healing. The Greek *therapeutés*, or therapist, means one “who cares for someone, takes care of someone” (Szulc, 1993, pp. 16–17). Incidentally, this classic definition brings the figure of the art therapist closer to the defining figure of a good leader (of an organisation) within the concept of *servant leadership* (Sendjaya & Sarros, 2002): “I serve because I am the leader, and I am the leader because I serve” (more on this in Table 1).

Wita Szulc defines art therapy as “the spontaneous creativity of patients, under the care of therapists, or the creative activities undertaken in a therapeutic situation by people previously non-creative in the visual arts” (Szulc, 2005, pp. 17–18). Rudowski (2009) considers art therapy to include the totality of artistic and aesthetic activities undertaken in a very wide range of settings (procedures) of psycho-socio-pedagogical methods focused on the healing of a patient or client, whereas in English-language literature art therapy is increasingly referred to as art-psychotherapy, and is understood as the use of artistic means to express and work through the difficulties with which the client comes to therapy (Bogus, 2015). The specificity of art therapy is that it is in fact somehow “torn” between:

- a) pedagogy – among other things, because educational pedagogical universities most often adopt this therapy in their curricula. The second reason is the utilitarian use of art therapy in education,
- b) health sciences – therapeutic functions of art therapy place it among the health sciences, and art therapists often cooperate with doctors,
- c) psychology – art therapy sometimes comes in a variety called: “psycho art therapy.” Knowledge of the human psyche is crucial for art therapists, especially since, until recently, psychologists had no insight into the client’s “interior” (in the literal sense of the word) – unlike doctors. The situation is currently changing thanks to the use of neuroscience research (see, for example King & Kaimal, 2019) to art therapy theory.

Wita Szulc (2010, p. 40) addressed the problem of the identity of art therapy as a scientific discipline that needs to establish its own research methods in order to develop and gain recognition in the world of medical therapy. She also draws attention to the differences between “making the stay of patients in hospitals more pleasant” and actual art therapy activities. According to Andrea Gilroy (see: Szulc, 2010, p. 41) art therapy fulfils the criteria of the definition of science, because it meets all the conditions, that is it represents a certain state of knowledge, it is a department of systematised knowledge, and it is something that can be studied and learned as systematised knowledge.

**Art therapy in management and quality sciences**

In order to explore the possible links and relationships between art therapy and management and quality sciences, and the potential contribution that can be made by using the output of management and quality sciences in the theory and practice of art therapy, the most important ones were reviewed, according to the author of the concept, that is ones often found in the literature of management and quality sciences, as well as economics (e.g. *creative sectors, creative economy*). The scientific problem, for which a solution was sought, was to discover the links between art therapy (both in practical and theoretical terms). A deductive approach was used, whereby:

- 1) the variables were defined, and are selected concepts from management and quality sciences,
- 2) relationships and connections were sought,
- 3) postulates (theses) were formulated regarding possible future interdisciplinary research and conceptual relationships.

Table 1 shows the results of this search. On the basis of the respective bodies of knowledge with regard to each of the concepts listed in the table, an attempt was made to indicate how the concept could be used for scientific research on the management of the art therapy process. These concepts seem particularly closely linked to the theory, and in some cases the practice, of art therapy. The presented overview

**Table 1**  
*Common areas and links between management and quality sciences and art therapy*

Concept within management and quality sciences	Art therapy reference: <i>keywords + description</i> Postulates (theses) concerning potential future interdisciplinary research and conceptual relationships
Creativity	<p><i>Creativity, expression of creativity, domains of creativity, the profession of a therapist as a creative profession, art therapy services as part of the creative sectors</i></p> <p>According to the OECD (2019), creativity is the competence of efficiently generating, evaluating and refining ideas that can result in original and effective solutions, knowledge development and an impact on imagination. This definition emphasises the importance of involvement, i.e. the expenditure of energy on the part of the learner to carry out the creative process, and the value of this process is measured by the originality and relevance of the solutions created to the issue at hand. It is difficult to imagine a good therapist who is not gifted with an increase increased level of creativity. As a consequence, the application of knowledge on creative processes can be introduced to the training programmes for art therapists.</p> <p>Most definitions of art therapy include a component indicating the client’s involvement in the creative process. Obviously, these definitions refer to the role of art in the client’s/patient’s life.</p> <p>Above all, art shows us an image of a certain concrete external reality of human life [...]. Thanks to art, the world of the most ordinary daily feelings and experiences is shown in deeper and multiplied dimensions. Simple actions or events acquire a new meaning through the prism of art, and become more objectified and generalised, and a process of human enrichment takes place thanks to what is most human. (Szulc, 1988, p. 39)</p> <p>A better understanding of the mechanisms explaining creativity is therefore absolutely essential for every art therapist. Although art therapy is not about enhancing a person’s creativity, it is worth knowing what the client’s creative reserves are, especially taking into account Baer’s theory (Baer, 1991), which states that people are characterised not so much by creativity in the general sense, but by so-called domain-specific creativity. If an art therapist fails to recognise these domains, then the whole effort of the art therapy concept may be lost, because they will engage the ‘wrong’ domain of the client’s creativity in the process (see also Fazlagić, 2015). Wita Szulc (Szulc, 2018, p. 25) draws attention to creative therapies as other specialised forms of art therapy, alongside visual arts.</p>

# Art therapy from the perspective of management...

**Table 1** – continue

Concept within management and quality sciences	Art therapy reference: <i>keywords</i> + description Postulates (theses) concerning potential future interdisciplinary research and conceptual relationships
Creativity	<p>While management and quality sciences focus on the functioning of individual organisations, the interest of economics is in larger social organisations, such as countries or regions. Interestingly, here too we can find links with art therapy, as well as a bridge between this therapy and economics is the concept of creative sectors (more on this in: (Fazlagić &amp; Skikiewicz, 2019; Fazlagić &amp; Szczepankiewicz, 2020). Creative sectors are those sectors of the economy that employ creative workers in companies and other organisations that create added value through the sale of creative products and services, for example computer games, artistic events, graphic design services, media and advertising services, entertainment, etc. From the point of view of the classification of occupations, the profession of an art therapy would certainly have to be classified as a creative occupation, with art therapy belonging to the so-called 'creative class' (Florida, 2012).</p> <p>Bartel (2017, p. 32) draws attention to the relationship between creativity and illness, an issue that is often addressed in studies on the biographies of outstandingly creative people. It is generally known that many outstandingly creative people experienced illness in their childhood. In this sense, creativity is linked to medicine – it enters, willy-nilly, into the field of interest of art therapy.</p>
Motivation and personal development	<p><i>Motivation, personal goals, emotions, needs, desires, personal development, quality of life</i></p> <p>Expertise in motivation theories comes primarily from psychology, but management sciences draw abundantly on the research findings of psychologists, using this knowledge to develop effective management systems. Personal development is linked, on the one hand, to the issue of self-motivation, and, on the other hand, to employee development in organisations (employee burn-out, employee development, leadership development). Art therapy also aims to ensure the well-being of an individual using techniques that motivate the client towards self-development, enabling activation of the patient's (client's) potential. The difference between therapeutic actions and employee motivation largely comes down to the differences between the contexts of intervention. In management, the aim of an intervention targeting an employee is to increase the performance of the organisation in the broadest sense (and the game of increasing the well-being of the organisation and the well-being of the employee is not a zero-sum game), while in therapy, the aim of an art therapy intervention is to reduce or eliminate physical and/or psychological suffering. However, even then it is not a sharp distinction, as negative phenomena such as bullying, chronic conflict and job burnout are common problems in organisations. In such cases, interventions by the employer towards affected employees may be indistinguishable from therapy. At the same time, it must be understood that employee wellbeing is not an end in itself, but a means to achieving results for the organisation that employs them.</p>
Work-Life Balance (WLB)	<p><i>Culture, flexibility, well-being, quality of life</i></p> <p>The object of the culture of therapy is a person who wants to be healthy and expects help in achieving this goal (Szulc, 2011, p. 25). This means that the techniques and interventions developed in art therapy do not necessarily have to be limited to the field of health care and support for those who are ill. Wita Szulc (Szulc, 2005, p. 54) writes of "health as a performance"; where "becoming healthy" is a creative act in itself, i.e. a performance, a presentation. Music therapy is one such activity that contributes to the quality of life, of which health is one of the conditions.</p> <p>From the perspective of an employee in an organisation <i>Work-Life Balance</i> is the state where an individual achieves a balance between work and their private life. From the employer's perspective, the term covers various types of measures aimed at increasing job satisfaction. These measures are based on the assumption that employees who are too absorbed in their work are less productive than those who have found a balance between their personal lives and their work. The concept is also based on a generational shift in the labour market: employees of generations Y and Z are less likely to make sacrifices for their employer and advance their careers at all costs. As a result, retaining young people is a challenge due to their lack of interest in pursuing successful careers in organisations at the expense of personal freedom. Various types of therapeutic techniques, especially those linked to positive psychology, can be successfully used in WLB programmes (see among others Carlson &amp; Kacmar, 2000; Hirschi et al., 2019; Michel et al., 2014).</p>
Leadership	<p><i>Leading, giving meaning and sense to cooperation, setting direction, giving hope</i></p> <p>Leadership issues obviously occupy a central position in management and quality sciences. Research on the subject of leadership is, on the one hand, concerned with the accurate definition of effective leadership and, on the other hand, with methods for developing leadership competences among leaders in organisations. Many researchers are preoccupied with the idea of discovering a "golden set" of leadership behaviours guaranteeing that organisations achieve their intended outcomes. The considerable number of different types of leadership theories should encourage art therapists to reflect on the ways in which they conduct therapy.</p>

**Table 1** – continue

Concept within management and quality sciences	Art therapy reference: <i>keywords</i> + description Postulates (theses) concerning potential future interdisciplinary research and conceptual relationships
Leadership	<p>Leadership theories explain how and why certain individuals become leaders. The role of the art therapist can be compared to that of a leader in a process involving another person. As with leading a human team, the art therapist can also potentially take different strategies to build relationships and achieve (therapeutic) goals. Situational leadership theories may be of particular interest from the perspective of art therapy theory and practice. In the literature on art therapy, there is much discussion of the competences of the art therapist and the standards for teaching art therapy. Also in leadership theories can we find theories that focus on the traits of the leader (traits approach) and their skills (skills approach). Therapists should also be interested in the concept of various leadership styles (style approach), or the situational approach, and theories of effective matching the leadership style to the situation (contingency theory), oriented towards motivating subordinates (path-goal theory), and the interactions between the leader and subordinates (leader-member exchange theory) (see for example Northouse, 2013).</p>
Interpersonal communication	<p><i>Interacting with the environment, exchanging meanings, interpersonal communication, dialogue</i></p> <p>There is an abundance of literature on interpersonal communication (Communication Studies), including communication in organisations (see for example Guerrero et al., 2014; Knapp et al., 2014; Littlejohn &amp; Foss, 2008). Here it is worth mentioning, among others, the communication privacy management theory, which deals with the mechanisms for the reception and disclosure of private information (Petronio &amp; Venetis, 2017). Another interesting theory is the Relational Dialectics Theory (RDT) (Baxter &amp; Braithwaite, 2008), which deals with the creation of meaning in dialogue between competing discourses. Within this theory, discourse is understood as systems of meanings that are revealed during dialogue between people. In research on interpersonal communication, a prominent place is taken by the concepts of identity and cultural differences (Schnurr &amp; Zayts, 2012). In the therapy process, the art therapist aims to gain a better understanding of the patient's identity. According to Anita Stefańska, art therapy is predestined to initiate the process of unveiling and reinforcing "I" of a thought of being of the entities in the relational space. It is based on and refers to, among other things, the ability to establish contact, to express and set clear boundaries, to provide a framework, and to be consistent and coherent as well as flexible, i.e. the essential communication competences necessary in social situations (Stefańska, 2015, p. 7).</p> <p>Wita Szulc (Szulc, 2014, pp. 13-24) draws attention to such aspects of art therapy communication as identification, action, trust and clarity; art therapy is a form of face-to-face communication. In organisational management, on the other hand, researchers are concerned with describing the various formal and informal roles and identities of employees (Welbourne, 2012). Many management theories come from psychology. Nevertheless, management and quality sciences in some cases play the role of a mediator/populariser of psychology, as they seem to demonstrate the practical applications of scientific discoveries more often than is the case with psychology. Psychologists are interested in human beings in the general sense, whereas management sciences are interested in people within organisations, people solving social problems. This is well illustrated by the disclosure theory, which has its origins in psychology, but has many applications in management and quality sciences allowing for the explanation of employee behaviour in organisations (see, for example: Greene et al., 2006; Masaviru, 2016).</p>
Service management and relationship marketing	<p><i>Trust, relationship, joint value creation, exchange of values, co-creation of a "service product", management of experience</i></p> <p>There is no doubt that art therapy is a service (possibly a 'service product') – a service that can be provided both as a public service (e.g. by a public hospital) and on a commercial basis (e.g. by a private art therapy practice). Art therapy services contribute to the broadly defined service sector, which is the largest of the three economic sectors, aside from the manufacturing and agriculture sectors (for more on this see Fazlagić, 2012). Relationship marketing is a development stage of marketing that emerged primarily for the management of service organisations, with a distinguishing feature being the focus on building a long-term relationship with the client. In relationship marketing, the completion of a transaction (sale) becomes secondary, and the creation of value for the customer becomes more important. Relationship marketing is all about high quality service, customer feedback, and regular communication with the customer (see, among others Grönroos, 1994; Rogoziński, 2012). In the literature on service management, a vital role is played by service design (see, for example: Fazlagić, 2013) and experience design. Wita Szulc (Szulc, 1988, p. 40) refers to John Dewey, who treats art as an experience, and believes that a work of art has a unique quality, albeit a quality manifested in clarifying and focusing the meanings that the matter of other experiences contains in a diffuse and diluted way. Culture therapy is primarily focused on the feelings and emotions of the patient, which they are usually difficult to express directly. A similar approach can be found in the literature on service design (Stickdorn et al., 2018) and empathic design.</p>

# Art therapy from the perspective of management...

**Table 1** – continue

Concept within management and quality sciences	Art therapy reference: <i>keywords</i> + description Postulates (theses) concerning potential future interdisciplinary research and conceptual relationships
Service management and relationship marketing	According to Anita Stefańska, art therapy is well-positioned to initiate a process of developing and reinforcing the subjects of relational space, based on and referring to, among other things, the ability to establish contact, express and set clear boundaries, provide a framework, be consistent and coherent, and be flexible, i.e. to the essential communication competences necessary in social situations (Stefańska 2015, p. 7).
Learning in an organisation and a learning organisation	<p><i>Systemic thinking (seeing processes and their mutual relations rather than separate events), learning, team learning, personal mastery</i></p> <p>The concept of a learning organisation was popularised by Peter Senge (1998), and is categorised as one of the leading management schools – namely system thinking school. Thanks to the work of Peter Senge, among others, management practitioners and theorists have recognised the crucial importance of learning processes for the development of organisations (Senge, 1998). In psychology, on the other hand, developmental theories and learning theories are distinguished (Rubin, 2001), as well as systemic therapies, which are directly linked to the concept of organisational learning, i.e. the employee's personal development and the therapy process can be described and explained using the same theories.</p> <p>It is worth noting that the definition of therapy and that of learning are not significantly different. Learning is defined as a cognitive process leading to the modification of an individual's behaviour under the influence of experience, which usually increases that person's adaptation to the environment. Learning entails shaping the behaviour of an individual as a result of his/her previous experiences.</p>

Source: author's own work.

does not exclude the possibility of expanding the list to include some other concepts. The author's intention when reviewing these concepts was not to exhaust the topic, but rather open up a new avenue of research, and present the community and therapists with potential for further exploring on their own. The research approach proposed here by the author is intended as a way of promoting a multidisciplinary approach to science, which, it seems, will be essential in the age of artificial intelligence, as AI does still not have the capacity to embrace reality as holistically as humans (for more on this, see, among others: Harari, 2018). As such, the multidisciplinary approach, which is closely linked to human creativity, is also an opportunity to maintain human superiority over artificial intelligence in the field of scientific research in the broadest sense.

## Summary

The aim of this article was to identify possible areas for further interdisciplinary research linking the field of management and quality sciences with health sciences and education sciences (bearing in mind that art therapy is not a separate, autonomous scientific discipline). This was achieved by conducting a comparative analysis of selected concepts in the field of management and quality sciences, and then formulating conclusions in the form of postulates (theses) concerning possible future interdisciplinary research and conceptual relationships.

The use of the theories mentioned in this paper can contribute to the further development of art therapy practice and theory, enriching it with new perspectives, and research agenda and approaches. The

aspirations of art therapists who seek the autonomy of art therapy among other social sciences are also important. The theories and research areas within the discipline of management science presented in this literature review represent only a "sample" of a wide range of research directions, and are intended to illustrate a wealth of knowledge that does not seem to be widely used in art therapy theory. Even if art therapist practitioners intuitively understand the theories mentioned, unconsciously applying them in practice, it is all the more worthwhile to make an effort to codify them within the framework of art therapy theory.

Such acknowledgment will certainly be easier if the authors of art therapy research make wider use of the achievements of other social science disciplines. The management and quality science concepts presented in the paper are the result of the author's subjective choice, and are certainly not exhaustive of the wide range of ideas that can be found in the literature. According to the author, rather than "exhausting the issue" it was more important to simply direct the attention of the research community to the discipline of management and quality sciences – using the example of a certain representative sample of concepts found in these sciences. There is no doubt that the comments in the table do not completely cover the issue, and it was certainly not the author's intention to create a closed list of concepts and at the same time exclude others from the scope of interest of researchers in the future. If this goal is achieved in the future and works further along the lines outlined here emerge, then this will certainly be beneficial to the development of art therapy in Poland and internationally, as postulated in the studies of Professor Wita Szulc.

## References

- Baer, J. (1991). Generality of creativity across performance domains. *Creativity Research Journal*, 4(1), 23–39. <https://doi.org/10.1080/10400419109534371>
- Bartel, R. (2017). *Arteterapia i rozwój osobisty. teoretyczne i praktyczne aspekty terapii przez sztukę*. Uniwersytet Artystyczny w Poznaniu.
- Baxter, L. A., & Braithwaite, D. O. (2008). Relational dialectics theory. In L. A. Baxter, & D. O. Braithwaite (Eds.), *Engaging theories in interpersonal communication: Multiple perspectives* (pp. 349–361). Sage Publications, Inc. <https://doi.org/10.4135/9781483329529.n26>
- Bogus, M. (2015). Arteterapia a zajęcia szkolne. In A. Stefańska (Ed.), *Arteterapia i twórczość w przestrzeni psychospołecznej* (pp. 93–107). Wydawnictwo im. Adama Mickiewicza w Poznaniu, Wydział Pedagogiczno-Artystyczny.
- Carlson, D. S., & Kacmar, K. M. (2000). Work-family conflict in the organization: do life role values make a difference? *Journal of Management*, 26(5), 1031–1054. <https://doi.org/10.1177/014920630002600502>
- Fazlagić, J. (2012). *Czy Twoja firma jest innowacyjna? Jak poszukiwać innowacji w sektorze usług? Podpowiedzi dla MSP*. Polska Agencja Rozwoju Przedsiębiorczości. <https://www.parp.gov.pl/component/publications/publication/czy-twoja-firma-jest-innowacyjna-jak-poszukiwac-innowacji-w-sektorze-uslug-podpowiedzi-dla-msp>
- Fazlagić, J. (2015). *Kreatywni w biznesie*. Wydawnictwo Poltext.
- Fazlagić, J. (Ed.). (2013). *Service design*. Wydawnictwo AFiBV.
- Fazlagić, J., & Skikiewicz, R. (2019). Measuring sustainable development – the creative economy perspective. *International Journal of Sustainable Development & World Ecology*, 26(7), 635–645. <https://doi.org/10.1080/13504509.2019.1651418>
- Fazlagić, J., & Szczepankiewicz, E. (2020). The role of local governments in supporting creative industries – A conceptual model. *Sustainability*, 12(1), 438. <https://doi.org/10.3390/su12010438>
- Florida, R. (2012). *The rise of the creative class*. Basic Books.
- Greene, K., Derlega, V., & Mathews, A. (2006). *Self disclosure in personal relationships*. In A. L. Vangelisti, & D. Perlman (Eds.), *The Cambridge handbook of personal relationships* (pp. 409–427). Cambridge University Press.
- Grönroos, Ch. (1994). From scientific management to service management: A management perspective for the age of service competition. *International Journal of Service Industry Management*, 5(1), 5–20. <https://doi.org/10.1108/09564239410051885>
- Guerrero, L. K., & Andersen, P. A., & Afifi, W. (2014). *Close encounters: communication in relationships* (4th ed.). SAGE.
- Harari, Y. N. (2018). *Homo deus. Krótka historia jutra*. Wydawnictwo Literackie.
- Hirschi, A., Shockley, Kristen, M., & Hannes, Z. (2019). Achieving work-family balance: An action regulation model. *Academy of Management Review*, 44(1), 150–171. <https://doi.org/10.5465/amr.2016.0409>
- King, J. L., & Kaimal, G. (2019). Approaches to research in art therapy using imaging technologies. *Frontiers in Human Neuroscience*, 13, 1662–5161. <https://doi.org/10.3389/fnhum.2019.00159>
- Knapp, M. L., Vangelisti, A. L., & Caughlin, J. P. (2014). *Interpersonal communication and human relationships* (7th ed.). Pearson.
- Littlejohn, S., & Foss, K. (2008). *Theories of communication* (9th ed.). Sage Publications.
- Masaviru, M. (2016). Self-disclosure: Theories and model review. *Journal of Culture, Society and Development*, 18, 43–47.
- Michel, A., Bosch, Ch., & Rexroth, M. (2014). Mindfulness as a cognitive–emotional segmentation strategy: an intervention promoting work–life balance. *Journal of Occupational and Organizational Psychology*, 87(4), 733–754. <https://doi.org/10.1111/joop.12072>
- Northouse, P. G. (2013). *Leadership. Theory and practice* (6th ed.). Sage.
- OECD. (2019). *PISA 2021 Creative Thinking Framework (Third Draft)*. OECD Publishing.
- Petronio, S., & Venetis, M. K. (2017). *Communication privacy management theory and health and risk messaging*. <https://doi.org/10.1093/acrefore/9780190228613.013.513>
- Rogozński, K. (2012). *Zarządzanie wartością z klientem*. Wolters Kluwer Polska SA.
- Rubin, J. A. (2001). *Approaches to art therapy. Theory and technique*. Brunner/Mazel. <https://doi.org/10.4324/9780203716991>
- Rudowski, T. (2009). *Studia nad arteterapią w ujęciu aksjologicznym i psychologicznym*. Uniwersytet Warszawski.
- Schnurr, S., & Zayts, O. (2012). ‘You have to be adaptable, obviously’: constructing professional identities in multicultural workplaces in Hong Kong. *Pragmatics. Quarterly Publication of the International Pragmatics Association*, 22(2), 279–300. <https://doi.org/10.1075/prag.22.2.05sch>
- Sendjaya, S., & Sarros, J. C. (2002). Servant leadership: Its origin, development, and application in organizations. *Journal of Leadership & Organizational Studies*, 9(2), 57–64. <https://doi.org/10.1177/107179190200900205>
- Senge, P. (1998). *Piąta dyscyplina. Teoria i praktyka organizacji uczących się*. Dom Wydawniczy ABC.
- Stefańska, A. (Ed.). (2015). *Arteterapia i twórczość w przestrzeni psychospołecznej*. Uniwersytet im. Adama Mickiewicza w Poznaniu, Wydział Pedagogiczno-Artystyczny.
- Stickdorn, M. Hormess, M. E., Lawrence, A., & Schneider, J. (2018). *This is service design doing. Applying service design thinking in the real world*. O’Reilly Media, Inc.

The full list of references is available in the online version of the journal.

**Jan Fazlagić** is a full-time professor at the Poznań University of Economics and Business in Poznań, Poland. A former Senior Fulbright Scholar at Sam Houston University (TX, USA) and Marie Curie Research Fellow at the Centre for Social Innovation in Vienna, Austria. European Commission Lead Expert in URBACT III programme. He is the author of over 300 books, research papers and popular media articles on knowledge management, intellectual capital, education and local governments. He has been involved in a number of projects supporting Polish public institutions including government agencies and ministries. His recent book is titled *A Creativity-friendly school. Key Success factors* (Difin, 2023).



*Magdalena  
Stefańska*



*Gabriel  
Grabowski*

# Empowerment and the quality of superior-subordinate relationships in the international business environment

## Abstract

The aim of this paper is to identify and explore nature of superior-subordinate relationship and the different uses of empowerment in organizations where employees and managers are of different nationalities. The hypothesis formulated in the study was that a correct relationship fosters empowerment, but this is conditioned by whether or not the work environment is an international one.

The research was conducted using the CAWI technique on a non-randomly selected sample of 277 respondents, and confirms a positive correlation between empowerment and the quality of relationships, and also between empowerment and the type of relationship. Moreover, the perception of relationships is modified when an international working environment is considered. In all models, the formal relationship proves to be an irrelevant factor in the use of empowerment. As far as the origin of the superior is concerned, when the superior is a foreigner, the quality, and not the type of the relationship, is the crucial factor. However, an informal relationship becomes important when there are no foreigners. This may cause certain threats in a situation where the company expands internationally.

**Keywords:** employee empowerment, formal and informal superior-subordinate relation, quality of relation, international work environment, comparative analysis

---

## Introduction

In the traditional approach to managing people, the manager's role is to plan, organize, motivate, manage and control employees. The manager often relies on excessively detailed examination of the subordinates' work and intervening in the way they perform tasks. In such situations, employees become only task performers, and their creativity and contribution to work and organization improvement is often limited. The introduction of empowerment could significantly improve employees' commitment and their relationships within the organization. Pistrui and Dimov (2018) indicate the need to move away from a traditional leadership. They underline the necessity to adapt organizations to the changing environment so that they can meet new challenges. The quality of the relationship and its type (formal or informal) seems to be of key importance here, as it enables management by empowerment, delegation of powers, and sharing of responsibility.

The main purpose of the article is to explore whether there is a relationship between empowerment and the superior-subordinate relationship in an international work environment. The main hypothesis formulated by the authors is that the use of empowerment depends on the quality and type of the relationship in an international work environment. The relationship between empowerment and employee relations has been studied (Gómez & Rosen, 2002; Liden, et al., 2000; May et al., 2004), while research in the international work environment is not widely discussed (Knezović & Drkić, 2021).

This paper is structured as follows. The first part explains the theoretical basis of the formulated main and detailed hypotheses. The key concepts adopted in the article

include superior-subordinate relations (SSR), formal (FR) and informal relations (IR), international work environment (IWE) and employee empowerment (EE). Hypotheses are formulated based on a literature review, and then the assumptions related to the applied research method are described, the research process is discussed, and the research results are presented. The next part contains a discussion and conclusions from the study and indicates further research trends.

---

## Theoretical foundations

---

### Employee empowerment (EE)

Moving away from hierarchical structures and traditional ways of managing people, while delegating powers to team members, often helps to build positive relationships with employees, and this facilitates achievement of the envisaged goals. The executive level is empowered by conferring decision-making powers upon employees, giving them responsibility for their work, and providing them with the necessary knowledge and skills. This concept can be explained as enhancing and strengthening competencies and development opportunities, vesting with power, subjectification, emancipation, or awakening human strength. In management sciences, *empowerment* means creating conditions for employees in which they will feel encouraged to engage in the decision-making process, and thus also to perform tasks more independently (Menon, 2001, pp. 153–154). EE is closely related to management techniques and instruments, such as motivation, job enrichment, communication, trust, participative management, delegation, training and feedback, which makes it necessary to examine the concept and its managerial dimension from different perspectives (Pelit et al., 2011, p. 784). Yingying (2015) indicates that EE is more than just delegating rights and responsibilities, because employees can use their knowledge to actively improve products and processes in their own posts and in their teams. The advantages of employing these practices in management include quick identification and response to problems, creativity and undertaking new initiatives, as well as an increased number of solutions that improve quality (Trzecieliński et al., 2013, pp. 14–21). EE is used to motivate employees to use their knowledge in the tasks they perform to achieve the best results (Blanchard, 2007, pp. 57–58). Involving employees in the decision-making process means that they have a broader range of responsibilities, and are more aware of costs and can reduce the costs with regard to their own work. Empowerment is the delegation of power and rights in order to make employees more effective (Stankiewicz-Mróż, 2015, p. 172). Such working conditions, as well as cooperation with superiors, can be an opportunity for employees who do not perform managerial functions to prove themselves.

Appelbaum et al. (2014) stress that it has been determined that a team-based structure and a culture based on trust and open communication are the key factors in successful implementation of empowerment.

Trust and effective two-way communication play an important role here (Stankiewicz-Mróż, 2015). Greasley et al. (2005) highlight the limitations in the use of empowerment that may exist in some industries, such as health and safety regulations (e.g. in construction). Another issue is connected with the diffusion of information. Bicudo de Castro and Sridharan (2022) found evidence for both direct and indirect positive effects between access to information and subordinate managers' performance. Access to some types of information not available before may also be perceived as a threat. Employees can use this information not only to perform tasks, but also to interpret tendencies and processes in the company that are beyond the scope of their duties. Empowerment may also evoke concerns among managers that transferring some competencies to their subordinates may mean that they are replaced by a subordinate at some point in the future.

Empowerment is not often studied from the employees' perspective. Usually, the focus is the manager's point of view. Conger and Kanungo (1988) were the first to formulate a definition of empowerment from the employees' perspective, as "a process of enhancing feelings of self-efficacy among organizational members through the identification of conditions that foster powerlessness and through their removal by both formal organizational practices and informal techniques of providing efficacy information". They viewed EE from two perspectives: the psychological perspective, which focuses on employees' perception of empowerment and employees' inner natures, and the relational perspective, which focuses on sharing power and delegation of authority within the organization. The latter is the topic and subject of research in the article. Greasley et al. (2008) state that employees do not recognize the term "empowerment", nor do they consider the term "power" to apply to themselves. However, they are able to relate to associated concepts, notably "personal responsibility" and "control over their work". Other research points to the key importance of middle management for the use of empowerment.

In the light of the above considerations, the following hypothesis was formulated:

- H<sub>1</sub>: The perception of applied empowerment depends on the position held – the higher in the hierarchy the employee is, the higher the perceived level of EE.

### Superior-subordinate relationship (SSR)

Interpersonal relationships occur in almost every sphere of human activity. In management sciences, the relationship is seen as business, functional, informational and technical ties in the organization (Klimas, 2013). There are interactions between co-workers who create the social reality in the workplace. Individual interactions form a sequence that creates a relationship (Pawłowska, 2006, p. 7). Leszczyński (2014, p. 9) believes that defining the concept of relations within the framework of management sciences, as well as in other fields, is particularly difficult, because it

cludes the institutional and organizational approach to the enterprise. As they involve people, relations are a common resource of both of them.

Considering the relations between employees, sometimes literary sources reduce them to the concept of communication (Bakar et al., 2007, p. 53), which can be a tool for building relationships, and sometimes even its effect (effective communication thanks to a good relationship). Thus, there is a temptation to use the concept of communication, as well as interaction (Ratajczak-Mrozek, 2010, p. 23) between the parties, or even management styles (Ślusarczyk, 2018, pp. 31–41), as a synonym for the term *relationship*.

The quality of the relationship, both on the level of entrepreneur-client and SSR, will be higher when both parties treat each other with understanding and have respect for the other party's needs. The low quality of the SSR is due to the economic exchange specified in the employment contract (transactional approach), where the formal requirements towards the employee and the financial benefits due to them are specified (Radstaak & Hennes, 2017, pp. 1–2). On the other hand, exchange based on a high-quality relationship significantly exceeds the formal requirements of the contract with the employee. It is characterized by trust, mutual respect, a form of mutual commitment, and affective attachment. The development of a specific type of relationship depends on a series of events shaping the division of roles between superior and subordinate, the way the manager communicates expectations and the extent to which the employee is willing or able to meet them (Breevaart et al., 2015, p. 755) as well as on factors such as stereotypical thinking of one or both parties or time pressure that is exerted on them in order to perform specific tasks (Dienesch & Liden, 1986, p. 621; Radstaak & Hennes, 2017, p. 2).

Munoz-Doyague and Nieto (2012, p. 128) claim that over time, the SSR becomes stronger, but it becomes more and more informal. Schein and Schein also point to the evolution of the SSR (2019). Since at the beginning of cooperation interactions are based mainly on the rules defined by the organization, FR prevail during this period. However, less formal interactions may also naturally occur during this period. Furthermore, considering that relationships develop over time, some of the FR established at the beginning of cooperation may be replaced by less formalized exchanges that are based on a higher level of trust and perceived as of higher quality. That makes empowerment easier. Another hypothesis was formulated based on these considerations:

H<sub>2</sub>: There is a positive correlation between the use of EE and the type and quality of SSR.

### **The international work environment (IWE) and the superior-subordinate relationship**

Employee management poses several dilemmas when the organization is international. The issue of expatriation of specialists and managers as well as the related challenges are addressed by Purgal-

-Popiela (2012), who described the frequent practice of companies operating on foreign markets, which takes place in the short, medium, and long term. Delegated employees perform functions related to parallel operations in two organizational units. Foreign missions are aimed at solving the problem of the competency gap between local employees and those employed at the headquarters, developing the organization in the area of management, controlling and coordinating activities and processes, transferring knowledge and skills, as well as preparing employees for future roles by enabling them to gain international experience. The misalignment of expectations of superiors in the corporate headquarters and subordinates or co-workers in the host branch, experienced by the expatriate, may be the source of the problem with building relationships.

These issues are related to cultural differences, starting from the language of communication, preferred forms of communication, existing extra-organizational cultural differences (customs, traditions, norms), as well as personality features of individual employees. Multinationality, and thus multiculturalism, in organizations can lead to tolerance, empathy, openness, willingness to cooperate, or creativity, but it can also be the source of a number of problems, especially in organizations that do not have managers experienced in functioning in an IWE (Bartlett, 1982; Gregory, 1983). As a result, the superior could be perceived from the perspective of a number of features, including the country of origin and the national culture (Hofstede, 2000). Globalization brought with it economic, but also socio-cultural changes, leading to the assimilation of many cultures and creating a sense of mixed culture among people around the world (Kwok-Bun & Peverelli, 2010) and cultural homogenization (Hopper, 2007).

Apart from the specific country of origin of the superior and considering the process of evolution of the relationship - from formal to less formal over time and the superior and the subordinate getting to know each other, the following hypothesis was formulated:

H<sub>3</sub>: The type and quality of the SSR have an impact on empowerment in an IWE.

---

### **Research method**

---

In order to verify the hypotheses, a CAWI survey was conducted among employees and superiors in 2022. People invited via LinkedIn.com and working students studying for master's degrees at economic universities in Poland and Croatia took part in the survey. Therefore, the research tool was prepared in Polish and English. Students, especially future business leaders, may be appropriate research subjects for that issue (Ahmed et al., 2003; Fukukawa et al., 2007; Peterson & Merunka, 2014). The questionnaire in English was verified in terms of methodological correctness (Harzing, 2005). Due to the adopted research subject area, the method of purposive selection of respond-

ents was applied (criterion: a working person whose direct or indirect superior is a person from a different country than the respondent). Finally, the surveyed group included both people meeting this criterion and those who had no direct or indirect contact with a foreign superior, making it possible to compare the opinions of the two groups.

The snow bowling method was also applied to achieve a higher response rate and a more homogeneous group (Heckathorn, 2011).

The questionnaire for the study was built on the basis of the Menon scale (2001), Juchnowicz (2012), Glińska-Neweś (2017), a tool developed by Kumar Pradhan and Panda (2021) and May et al. (2004) (appendix, Table 1), and fourteen in-depth individual interviews with managers of international corporations conducted before the quantitative study<sup>1</sup>. Four items from the research tool developed by Kumar Pradhan and Panda (2021) were used to analyze the perceived level of EE. Four items to measure whether the relationship was formal or informal were based on interviews with managers and their perception of the superior-subordinate relationship. Seven items were constructed based on the Graen and Uhl-Bien (1995) LMX questionnaire. The presented conclusions were based on fifteen items measuring the level of perceived empowerment as well as formality and quality of the superior-subordinate relationship.

The responses to the items were used to estimate arithmetic averages. Each time, the created index consisted of at least two opinions that were used to examine the respondent's attitude towards a given issue. Correlation and regression analysis were applied, similarly to Serrenho et al. research (2022).

---

### Respondents' profile

---

277 respondents took part in the survey and 106 met the criterion of a direct or indirect foreign superior. That structure made it possible to compare the perception and attitude towards empowerment, considering not only the position in the organization but also internationality context. The characteristics of participants of the research is presented in Table 2 (appendix).

---

## Results

---

### Use of empowerment

Empowerment is an integral element of managing employees and engaging them to achieve the goals of the organization. The conducted study shows that EE is an element of employee management. The data

in Table 3 (appendix) prove that there are differences in the perception of empowerment depending on the occupational position and the work environment. Higher average values were obtained in the group of employees in decision-making positions (DMP) and where the superior was a foreigner.

In order to test the hypothesis about a significant difference in the perception of EE depending on the occupational position and the work environment, a one-factor analysis of variance of independent samples was conducted. This demonstrated that the compared groups significantly differed statistically in the case of three out of four opinions (excluding EE3 – no statistically significant differences). This means that the occupational position and the presence of a foreign superior makes a difference to the evaluation of opinion on empowerment, measured on a scale from 1 to 5.

The test conducted to compare the average values between the groups considering the work environment type shows that the statistically significant differences concern three opinions – except for opinion EE3. Furthermore, statistically significant differences occur only between employees in decision-making and executive positions or in an independent specialist position.

Another observation is that in almost all categories of the comparison, employees in executive positions feel a lower level of empowerment – the average value is lower than in the case of decision-making employees (the only exception is in item EE3 – here the value is higher for executive employees). In all situations, as far as responsibility for the results of work is concerned, the average value is the highest in the DNP respondents group – close to or above 4.4. When EE is considered by respondents from that group, the awareness of it and assessment is lower, below 4.0, but still higher than in the executive employees (EP) group. Another issue should be also noted – in the case of opinion EE3 – no statistically valid differences were observed. This might be explained by the fact that employees may play a dual role – both as executive and decision-making persons, and this is why the average value in the case of decision-making persons is lower than in other opinions in that segment of respondents.

### Quality of relations (QR) and type of SSR and EE

The SSR is a complex construct. It was measured using the LMX7 scale. Based on opinions used to measure the quality and type of relationships and EE, the indices were estimated as arithmetic averages. The created series of data were used for correlation analysis using the Pearson correlation index (appendix Table 4).

They indicate a moderate correlation between the quality of relation (QR) and the use of EE. However, considering the type of relationship, the FR and the QR

---

<sup>1</sup> Among the respondents who gave online interviews in 2021–2022, i.e. during and shortly after the pandemic and numerous restrictions, there were medium-level and senior managers working in international organizations: Construction Manager, Operations Manager, Captain of a Sea Ship, Production Manager, Purchasing Manager, IT and Implementation Director, HR Team Manager, Commercial Director, Export Director, CFO, Managing Director, Managing Director, CFO, Managing Director.

# Empowerment and the quality of superior-subordinate...

---

show weak correlation in the opposite direction. The FR is therefore inversely correlated with EE and with the QR. This would mean that an FR does not foster good QR. The obtained results raise the question of whether there is a cause-and-effect relationship between the relations and empowerment (appendix, Table 5).

In addition, considering the country of origin of the employees, a stronger relationship between the QR and EE is observed when the supervisor is a foreigner, and there is a stronger inverse correlation between the FR and QR.

A hypothesis was formulated that the type and quality of the relationship should affect EE. The results of the regression analysis (adjusted  $R^2 = 0.255$ ) presented in Table 5 show that EE is positively influenced by the QR and its informal nature, while the formal relationship is the variable excluded from the model.

A positive impact of only QR on EE in the case of an IWE is also confirmed (adjusted  $R^2 = 3.62$ ). In the model where there are no foreigners in the work environment (adjusted  $R^2 = 0.228$ ), the QR and its informal nature affect EE (appendix, Table 6).

---

## Discussion of results

---

Klagge (1998) concludes that organizations should perceive middle managers as “bridges” rather than “blockages” to the implementation of empowerment. The presented results confirmed that the perception of EE depends on the position occupied in the organization. Secondly, employees in DMP notice EE to a greater extent. It seems that this is related to the type of EE used, which in their case may be of a formalized nature, while employees in EP are not empowered in the same way. It is possible that in their case, EE is more informal and may result, for example, from experience in a given position or seniority in the organization.

Also, where the countries of origin of a superior and a subordinate are different, DMP believe to a greater extent than employees in EP that they are satisfied with the applied empowerment. Employees who do not have a foreign superior feel less independence and responsibility for their tasks. At the same time, research shows that they feel responsible for the results of teamwork, which might seem confusing. Perhaps this is because this team involvement and sharing of responsibility is not formalized, or this is not clearly articulated by the supervisor. Another explanation may concern noticing the importance of EE in general.

The conclusions regarding the QR and the type of QR in the IWE and in the context of EE are especially interesting. The results show that the QR is crucial for employees' perception of the use of EE. At the same time, the study shows that the FR is an irrelevant factor for EE, regardless of the work environment. This may mean that when EE is formalized, its “causative force” in terms of motivation takes on a different, institutional character. Thus, a person with greater co-responsibility for the performed tasks can be expected to have the tools to influence the team. There are also questions whether the IR which emerged as a factor fostering EE

in a non-internationalized work environment, will contribute to achievement of the goals of the department or organization, because the IR between the supervisor and the employee indicates their privileged position. If the quality or type of a manager's relationship with individuals differs, team members may be informally divided into *in-group* and *out-group* employees. The first of these groups will have greater freedom of action, while the latter will be obliged to operate within strictly defined formal rules (Lunenburg, 2010, pp. 1–3). The criteria for the aforementioned division of subordinates are crucial. If they are objective (e.g. seniority, maturity and employee experience, or their work performance), empowerment is not used by the selected people to meet their individual needs at the expense of the company. In addition, other people have a real chance of becoming empowered in the future, which can be motivating for them. A separate issue that could be clarified by further research is why IR are not important in the environment of multinational enterprises. Therefore it needs to be examined whether this is due to further standardization and greater equality in establishing the rules of cooperation in these organizations, or whether it is the effect of a barrier between superiors and subordinates of different countries of origin, caused by cultural or language differences or, for example, limited trust related to the perception of a foreign manager as an *emissary of the corporate headquarters*.

---

## Conclusions

---

The presented literature studies and research results lead to the conclusion that EE is an important tool for motivating employees, which is related to the quality of SSR. A good or proper relationship will foster the use of EE. For EE, it is not important whether the relationship is formal, because it is based on premises other than hierarchy and formalized processes in the organization. However, for EE to take place, micromanagement should be replaced by employee empowerment, which means delegating and allowing people to make many decisions independently. Managers should be open to the opinions of their team members, or even include them in the leadership circles, or at least provide feedback after receiving those opinions.

Despite certain related risks and fears, EE can be an important tool for a manager, not only in the effective implementation of the goals set for their team but also in building relationships with employees through applying management methods that the employees will perceive as modern and different from those which they have experienced before. This will increase the level of their job satisfaction and reduce their will to change their place of employment.

---

## Limitations

---

Like most research studies, though this study provides further evidence for the extant literature, there are also a few limitations. First, the respondents are

mainly working students and the average age of research participants is 32 (standard dev. = 11.98).

As with any research that uses a non-randomly selected sample, its limitations must be taken into consideration. Data were collected through a convenience sample, which was not representative of the population. In future investigations, the authors recommend replication of research because only through empirical replications can researchers pragmatically assess the reliability, validity, and generalizability of research findings (Peterson & Merunka, 2014). Also, in order to verify the obtained results, considering the possible impact of culture, it is worth conducting research in international organizations, covering individual countries. This would enable the identified relationships and cause-and-effect links to be assessed in a wider group of respondents, and also in terms of the updated determinants of national cultures. We suggest replicating our study in other European countries, for example due to the observed socio-economic differences in Europe itself (*International differences...*, 2015).

The presented research results also indicate further, recommended research directions, and these include:

- the impact of effective communication on building a superior-subordinate relationship, taking into account the level of the manager's knowledge of the language of the host country or a foreign language adopted as a corporate one by both parties to the relationship;
- the impact of empowerment on employees' job satisfaction and the will to remain in the organization or leave it;
- verification and reasons for the varying importance of informal relations in the environments of international and local enterprises.

The appendix is available in the online version of the journal.

## References

- Ahmed, M. M., Chung, K. Y., & Eichenseher, J. W. (2003). Business students' perception of ethics and moral judgment: A cross-cultural study. *Journal of Business Ethics*, 43, 89–102. <https://doi.org/10.1023/A:1022915316112>
- Appelbaum, H., S., Karasek, R., Lapointe, F. & Quelch, K. (2014). Employee empowerment: factors affecting the consequent success or failure – Part I. *Industrial and Commercial Training*, 46(7), 379–386. <https://doi.org/10.1108/ICT-05-2013-0033>
- Bakar, H. A., Mohamad, B., & Mustafa, C. S. (2007). Superior-subordinate communication dimensions and working relationship: Gender preferences in a Malaysian Organization. *Journal of Intercultural Communication Research*, 36(1), 51–69. <https://doi.org/10.1080/17475750701265282>
- Bartlett, C. A. (1982). How multinational organizations evolve. *Journal of Business Strategy*, 3(1), 20–32. <https://doi.org/10.1108/eb038953>
- Bicudo de Castro, V., & Sridharan, V. (2022). Advancing empowerment research in management control: the effects of access to information and deadlines. *Pacific Accounting Review*, 34(1), 23–48. <https://doi.org/10.1108/PAR-05-2020-0052>
- Blanchard, K. (2007). *Przywództwo wyższego stopnia*. Wydawnictwo Naukowe PWN.
- Breevaart, K., Bakker, A. B., Demerouti, E., & van den Heuvel, M. (2015). Leader-member exchange, work engagement, and job performance. *Journal of Managerial Psychology*, 30(7), 754–770. <https://doi.org/10.1108/JMP-03-2013-0088>
- Conger, J. A., & Kanungo, R. N. (1988). The empowerment process: Integrating theory and practice. *Academy of Management Review*, 13(3), 471–482. <https://doi.org/10.2307/258093>
- Dienesch, R. M., & Liden, R. C. (1986). Leader-member exchange model of leadership: A critique and further development. *The Academy of Management Review*, 11(3), 618–634. <https://doi.org/10.2307/258314>
- Fukukawa, K., Shafer, W. E., & Lee, G. M. (2007). Values and attitudes toward social and environmental accountability: A study of MBA students. *Journal of Business Ethics*, 71(4), 381–394. <https://doi.org/10.1007/s10551-005-3893-y>
- Glińska-Neweś, A. (2017). *Pozytywne relacje w zarządzaniu*. Wydawnictwo UMK.
- Gómez, C., & Rosen, B. (2001). The leader-member exchange as a link between managerial trust and employee empowerment. *Group & Organization Management*, 26(1), 53–69. <https://doi.org/10.1177/1059601101261004>
- Graen, G., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of leader-member exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective. *The Leadership Quarterly*, 6(2), 219–247. [https://doi.org/10.1016/1048-9843\(95\)90036-5](https://doi.org/10.1016/1048-9843(95)90036-5)
- Greasley, K., Bryman, A., Dainty, A., Price, A., Naismith, N. & Soetanto, R. (2008). Understanding empowerment from an employee perspective: What does it mean and do they want it? *Team Performance Management*, 14(1/2), 39–55. <https://doi.org/10.1108/13527590810860195>
- Greasley, K., Bryman, A., Dainty, A., Price, A., Soetanto, R., & King, N. (2005). Employee perceptions of empowerment. *Employee Relations*, 27(4), 354–368. <https://doi.org/10.1108/01425450510605697>
- Gregory, K. L. (1983). Native-view paradigms: Multiple cultures and culture conflicts in organizations. *Administrative Science Quarterly*, 28(3), 359–376. <https://doi.org/10.2307/2392247>
- Harzing, A. W. (2005). The use of English-language questionnaires in cross-national research. *International Journal of Cross Cultural Management*, 5(2), 213–224. <https://doi.org/10.1177/1470595805054494>
- Heckathorn, D. D. (2011). Comment: Snowball versus respondent-driven sampling. *Sociological Methodology*, 41(1), 355–366. <https://doi.org/10.1111/j.1467-9531.2011.01244.x>
- Hofstede, G. (2000). *Kultury i organizacje. Zaprogramowanie umysłu*. PWE.
- Hopper, P. (2007). *Understanding cultural globalization*. Polity Press.
- International differences in ethical standards and in the interpretation of legal frameworks. SATORI Deliverable D3.2 (2015)*. <https://satoriproject.eu/media/D3.2-Int-differences-in-ethical-standards.pdf>
- Juchnowicz, M. (2012). *Zaangażowanie pracowników. Sposoby oceny i motywowania*. PWE.

# Empowerment and the quality of superior-subordinate...

Klagge, J. (1998). The empowerment squeeze – views from the middle management position. *Journal of Management Development*, 17(8), 548–558. <https://doi.org/10.1108/02621719810228407>

Klimas, P. (2013). Relacje interpersonalne kadry kierowniczej jako czynnik sprawności sieci. *Organizacja i Kierowanie*, 3(156), 149–160.

Knezović, E., & Drkić, A. (2021). Innovative work behavior in SMEs: the role of transformational leadership. *Employee Relations*, 43(2), 398–415. <https://doi.org/10.1108/ER-03-2020-0124>

Kumar Pradhan, R., & Panda, M. (2019). Human resource empowerment: Development and validation of a measurement tool. *Global Business Review*, 3, 1–19. <https://doi.org/10.1177/0972150918816895>

Kwok-Bun, Ch., & Peverelli, P. J. (2010). Cultural hybridization: A third way between divergence and convergence. *World Futures*, 66(3), 219–242. <https://doi.org/10.1080/02604021003680479>

Leszczyński, G. (2014). *Adaptacja w relacjach business-to-business. Uwarunkowania i efekty*. Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu.

Liden, R. C., Wayne, S. J., & Sparrowe, R. T. (2000). An examination of the mediating role of psychological empowerment on the relations between the job, interpersonal relationships, and work outcomes. *Journal of Applied Psychology*, 85(3), 407–416. <https://doi.org/10.1037/0021-9010.85.3.407>

Lunenburg, F. C. (2010). Managing change: The role of the change agent. *International Journal of Management Business, and Administration*, 13(1), 1–6.

May, D. R., Gilson, R. L., & Harter, L. M. (2004). The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work. *Journal of Occupational and Organizational Psychology*, 77(1), 11–37. <http://dx.doi.org/10.1348/096317904322915892>

Menon, S. (2001). Employee empowerment: An integrative psychological approach. *Applied Psychology: An International Review*, 50(1), 153–180. <https://doi.org/10.1111/1464-0597.00052>

Munoz-Doyague, M. F., & Nieto, M. (2012). Individual creativity performance and the quality of interpersonal relationships. *Industrial Management & Data Systems*, 112(1), 125–145. <https://doi.org/10.1108/02635571211193671>

Pawłowska, A. (2006). Badanie relacji społecznych w organizacji z wykorzystaniem metod projekcyjnych.

*Studia i Materiały. Wydział Zarządzania Uniwersytetu Warszawskiego*, 1, 7–17.

Pelit, E., Öztürk, Y., & Arslantürk, Y. (2011). The effects of employee empowerment on employee job satisfaction: A study on hotels in Turkey. *International Journal of Contemporary Hospitality Management*, 23(6), 784–802. <https://doi.org/10.1108/09596111111153475>

Peterson, R. A., & Merunka, D. R. (2014). Convenience samples of college students and research reproducibility. *Journal of Business Research*, 67(5), 1035–1041. <https://doi.org/10.1016/j.jbusres.2013.08.010>

Pistrui, J., & Dimov, D. (2018). The role of a manager has to change in 5 key ways. *Harvard Business Review*. <https://hbr.org/2018/10/the-role-of-a-manager-has-to-change-in-5-key-ways>

Purgał-Popiela, J. (2012). Ekspatriacja w przedsiębiorstwie międzynarodowym z punktu widzenia centrali i oddziału goszczącego. *Zarządzanie i Finanse*, 1(3), 199–209.

Radstaak, M., & Hennes, A. (2017). Leader-member exchange fosters work engagement: The mediating role of job crafting. *Journal of Industrial Psychology*, 43, a1458. <https://doi.org/10.4102/sajip.v43i0.1458>

Ratajczak-Mrozek, M. (2010). *Sieci biznesowe a przewaga konkurencyjna przedsiębiorstw zaawansowanych technologii na rynkach zagranicznych*. Wydawnictwo UE w Poznaniu.

Schein, E. H., & Schein, P. A. (2019). *Potęga relacji w zarządzaniu. O trudnej sztuce bycia pokornym liderem*. Wydawnictwo Naukowe PWN.

Serrenho, R., Dos Santos, N. R., Dionísio, A., & Da Silva, P. R. (2022). Empowerment at work: An empirical study on empowering leadership and psychological empowerment. *Journal of Positive Management*, 11(1). <https://doi.org/10.12775/jpm.2020.004>

Ślusarczyk, Z. (2018). Kierowanie pracownikami: podstawowe relacje w układzie przełożony–podwładny. *Zarządzanie Innowacyjne w Gospodarce i Biznesie*, 1(26), 31–42. [https://doi.org/10.25312/2391-5129.26/2018\\_31-42](https://doi.org/10.25312/2391-5129.26/2018_31-42)

Stankiewicz-Mróz, A. (2015). Kontrola versus zaufanie. Nadzór nad pracownikami w erze koncepcji empowerment. *Zeszyty Naukowe Politechniki Łódzkiej, Organizacja i Zarządzanie*, 60, 169–184. [https://repozytorium.p.lodz.pl/bitstream/handle/11652/1168/Kontrola\\_versus\\_zaufanie\\_nadzor\\_Stankiewicz-Mroz\\_2015.pdf](https://repozytorium.p.lodz.pl/bitstream/handle/11652/1168/Kontrola_versus_zaufanie_nadzor_Stankiewicz-Mroz_2015.pdf) <https://www.p.lodz.pl/anie/nadzor>

Trzcieliński, S., Włodarkiewicz-Klimek, H., & Pawłowski, K. (2013). *Współczesne koncepcje zarządzania*. Wydawnictwo Politechniki Poznańskiej.

**Magdalena Stefańska**, PhD, Head of the Department of Strategic Management at Poznań University of Economics and Business. For many years, the author's research interests have focused on the issues of corporate social responsibility and sustainable development and consumption. She is the author of several dozen scientific publications in this field. In her research, she addresses issues such as the social responsibility of organizations towards employees, employer brand, and creating the image of the organization. She is a member of the PUEB Social Responsibility Committee, the Scientific Research Ethics Committee, and the Working Group for University Social Responsibility at the Ministry of Funds and Regional Policy.

**Gabriel Grabowski**, PhD in management, also holds a master's degree in environmental engineering. He got his doctor's degree at Poznań University of Economics and Business in 2023 and the subject of his dissertation was the significance of the superior-subordinate relationship for employee commitment in the environment of international organizations. He focuses on sustainable development issues and has more than ten years of managerial experience in international enterprises operating in the fields of renewable energy and environmental protection. In addition to professional life, post-secondary and university lecturing is an important part of his activity.



Marta  
Tutko



Piotr  
Woźniak

## Integrated management system at higher education institutions: Case study from Poland

### Abstract

Integrated management systems in enterprises are of interest to researchers, but at higher education institutions (HEIs) this issue has not been the subject of in-depth research to date. The main purpose of this article is to explore the integration process of standardized management systems (MS), namely quality MS (compliant with ISO 9001), environmental MS (ISO 14001) and energy MS (ISO 50001) at HEIs. The objectives are: (1) examining the reasons for integrating standardized MSs at HEIs, and (2) identifying the stages of the standardized MS integration process at HEIs corresponding to the Plan-Do-Check-Act (PDCA) cycle. To achieve this goal, a case study research strategy was adopted. One case, namely the University of Applied Sciences in Nysa, Poland, was analyzed. Multiple sources were used to obtain the data, and these were documentation, archives, interviews and participant observations. It was concluded that the main reason why the authorities of the analyzed HEI made the decision to integrate quality, environmental and energy MSs was to improve the university's performance. This research made it possible to identify activities carried out at the HEI in the process of MS integration which correspond to all stages of the PDCA cycle.

**Keywords:** higher education institution, integrated management system, ISO 9001, ISO 14001, ISO 50001

### Introduction

Standardized management systems enable organizations to meet challenges by applying best practices and confirming, through certification, that these practices are properly firmly established in them. The most widespread management system (MS) standards are those published by the International Organization for Standardization (ISO). Over the last two decades, the number of certified MSs compliant with particular ISO standards has grown rapidly. The total number of selected valid certificates in 2020 was as follows: ISO 9001: 916 842 valid certificates, ISO 14001: 348 218, ISO 45001: 190 429, ISO/IEC 27001: 44 486, ISO 22000: 33 735, ISO 13485: 25 656 and ISO 50001: 19 721 (ISO, n.d.). According to the ISO Survey 2020 (ISO, n.d.), in 2020, worldwide, the total number of valid certificates increased by 18% as compared to 2019. This increase is noticeable for the most popular MS standards in the world, i.e. ISO 9001, which saw an increase of 4%, and ISO 14001, which saw an increase of 12% (ISO, n.d.).

Organizations in various sectors of the economy, ranging from industry (e.g. manufacture of wood products, chemical products, pharmaceuticals), through agriculture (e.g. fishing and forestry) to services (e.g. hotels and restaurants, transport, public administration, education) strive to obtain certificates confirming that their MS complies with the selected standard. The number of standardized MSs deployed in the organization may vary. Some of them implement only one MS, while others have several. As organizations may have multiple standardized MSs, they manage them either separately or in an integrated manner (Bernardo et al., 2018). The formation of integrated management systems (IMS) is justified, as implementing these MSs standards in parallel often requires duplicating management tasks (Trierweiler et al., 2016). The scope of integration typically involves management systems for quality (ISO 9001), environment

(ISO 14001) and occupational health and safety (ISO 45001) (Dahlin & Isaksson, 2017). However, also other combinations are possible, depending on the needs of the organization (Bugdol & Jedynek, 2015).

HEIs around the world implement a variety of standardized MSs. To date, numerous publications have examined HEIs' MSs that are compliant with ISO 9001 (e.g. Ab Wahid, 2019; Basir et al., 2017; Karapetrovic et al., 1998) and ISO 14001 (e.g. Price, 2005; Sari & Kamalia, 2019; Sammalisto & Brorson, 2008). However, studies on MSs compliant with ISO 50001, to the best knowledge of the authors, are rare (e.g. Pasvorotkool & Mongkon, 2020).

The literature review shows that whereas IMSs in enterprises have attracted considerable interest of researchers (Beckmerhagen et al., 2003; Bernardo et al., 2018; Domingues et al., 2017; Trierweiler et al., 2016), studies of IMSs in HEIs are rare and treated as a side issue (e.g. Gheorghe et al., 2018; Holm et al., 2015). For example, Holm et al. (2015) focused on education for sustainable development, while Gheorghe et al. (2018) made little reference to IMS covering MSs for quality, environment and occupational health and safety. Thus, these studies present IMSs in a fragmentary way. The lack of publications on IMSs at HEIs covering MSs for quality (ISO 9001), environment (ISO 14001) and energy (ISO 50001) indicates a research gap. With this in mind, following the suggestion made by Holm et al. that there is a need for an extensive overview of recent developments in MSs at HEIs (Holm et al., 2015), the authors decided to conduct research that fills this gap. Therefore, the main aim of this article is to explore the process of integration of standardized management systems, namely quality MS (compliant with ISO 9001), environmental MS (ISO 14001) and energy MS (ISO 50001) at HEIs. The objectives are: (1) examining the reasons for integrating standardized MSs at the HEI and (2) identifying the stages of the standardized MS integration process at the HEI corresponding to the Plan-Do-Check-Act (PDCA) cycle.

This article consists of four parts, which are preceded by an introduction. Firstly, the main findings from the literature review on IMSs in organizations are presented. Secondly, the case study research method is explained. The results of the study are outlined in the following section. The article ends with the discussion and the conclusions.

---

## **Benefits and stages of integration of standardized management systems in organizations**

---

Integrated management systems are defined in different ways, as 'integration' has different meanings (Beckmerhagen et al., 2003). In the opinion of Beckmerhagen et al. (2003), "Integration of management systems can be defined as a process of putting together different function-specific management systems into a single and more effective integrated management system" (p. 213). In the specification PAS

99:2012 (BSI, 2012), a more precise definition of IMS is proposed, according to which IMS "integrates multiple aspects of an organization's system and processes to one complete framework, enabling an organization to meet the requirements of more than one management system standard" (p. 2). The MSs that are subject to integration, mentioned above, include quality MS, environmental MS, occupational health and safety MS, information security MS, energy MS, risk MS, social responsibility MS and other MSs. As MSs standards present different structures and requirements, MSs integration is challenging. To solve this problem, ISO developed Annex SL (ISO, 2023), the framework for a generic MS.

The goal of MSs integration is for the organization to benefit from the process. Studies prove that the amalgamation of MSs has numerous advantages:

- cost reduction (Beckmerhagen et al., 2003; Kafel, 2016; Khanna et al., 2010; Zeng et al., 2011; Zutshi & Sohal, 2005),
- reduction in the duplication of policies, procedures and records (Beckmerhagen et al., 2003; Kafel, 2016; Khanna et al., 2010; Zutshi & Sohal, 2005),
- simpler MSs with unified objectives, processes and resources (Beckmerhagen et al., 2003; Ejdys, 2011; Kafel, 2016; Zeng et al., 2011; Zutshi & Sohal, 2005),
- improved effectiveness and efficiency (Beckmerhagen et al., 2003; Kafel, 2016; Zutshi & Sohal, 2005),
- improved communication (Ejdys, 2011; Kafel, 2016; Zutshi & Sohal, 2005),
- increased customer and employee satisfaction (Kafel, 2016),
- a positive market image (Ejdys, 2011; Zutshi & Sohal, 2005).

After analyzing fifteen studies, Satolo et al. (2013) presented a list of ten advantages of MSs integration (from the most popular to the least popular), and these were cost reduction, bureaucracy reduction, elimination of redundancy, improvement of effectiveness and efficiency, harmonization of documentation, simplification of standards and requirements, increased competitiveness, resources and objective alignment, improved compliance with regulations, and a better work environment. This is consistent with the observation by Dahlin and Isaksson (2017), that for most researchers integration is beneficial in terms of cost reduction, operational advantages and improved customer satisfaction.

Some researchers only present the benefits of MS integration, whereas others classify these benefits (Ejdys, 2011; Satolo et al., 2013). The classification of benefits proposed by Ejdys (2011) is noteworthy due to its holistic approach. Ejdys divided the advantages of integration of MSs into two basic categories: external benefits, related to adapting to the requirements of the external environment, and internal benefits, related to the improvement of internal processes of the organization. In the first category, Ejdys listed

ensuring compliance with applicable legal regulations, meeting market requirements, and improving the image of the organization on the market. The second category consisted of direct and indirect (i.e. economic) benefits. Direct benefits fall into the following five areas (Ejdys, 2011): operational management, process improvement, product quality, environmental protection, and work safety.

The integration process of MSs should be conducted carefully. Beckmerhagen et al. (2003) propose using the PDCA cycle approach for this purpose, because the structures of standardized quality MS, environmental MS and energy MS are similar and based on the PDCA model. Therefore they can be combined and seamlessly integrated into one management system (Beckmerhagen et al., 2003; Fichera et al., 2020; Trierweiller et al., 2016). The PDCA cycle (see Table 1) provides a repeatable process used by organizations to achieve continuous improvement. The PDCA cycle has its roots in Total Quality Management which is a holistic management philosophy that endeavors continuous improvement of organizations (Kaynak, 2003).

To sum up, the above-mentioned benefits are an incentive to integrate multiple parallel MSs in other organizations. The article assumes that in the process

of deciding whether to integrate specific MSs takes account of the expected benefits. Integration of MSs ought to be planned and implemented in a structured way, to make sure that the organization benefits from the integration. Therefore, it should follow the PDCA approach (BSI, 2012).

**Case study research methodology**

The case study research strategy was adopted in the article. Its choice resulted from the stated objectives and the formulated research questions. Case study research allows to describe and explain a specific phenomenon. It also enables answers to research questions typical of qualitative research, i.e. how? and why? a given process takes place (Yin, 2015). One case was selected, which is justified when a unique case is analyzed (Budzanowska-Drzewiecka, 2022). The case study research strategy adopted in the article consists of several steps (Budzanowska-Drzewiecka, 2022): (1) specifying research issues, (2) case(s) selection, (3) collecting and organizing data, (4) analyzing data, (5) conclusions, and (6) making comparisons with the literature on the subject.

In this paper, the research issue concerns the process of integrating standardized management systems

**Table 1**  
What the letters PDCA stand for from the perspective of different standardized MSs

	Quality MS	Environmental MS	Energy MS
Plan	Establish the objectives of the system and its processes, and the resources needed to deliver results in accordance with customers' requirements and the organization's policies, and identify and address risks and opportunities	Establish environmental objectives and processes necessary to deliver results in accordance with the organization's environmental policy	Understand the context of the organization, establish an energy policy and an energy management team, consider actions to address risks and opportunities, conduct an energy review, identify significant energy uses (SEUs) and establish energy performance indicators (EnPIs), energy baseline(s) (EnBs), objectives and energy targets, and action plans necessary to deliver results that will improve energy performance in accordance with the organization's energy policy
Do	Implement what was planned	Implement the processes as planned	Implement the action plans, operational and maintenance controls, and communication, ensure competence, and consider energy performance in design and procurement
Check	Monitor and (where applicable) measure processes and the resulting products and services against policies, objectives, requirements and planned activities, and report the results	Monitor and measure processes against the environmental policy, including its commitments, environmental objectives and operating criteria, and report the results	Monitor, measure, analyze, evaluate, audit and conduct management review(s) of energy performance and the EnMS
Act	Take actions to improve performance, as necessary	Take actions to continually improve	Take actions to address non-compliance and continually improve energy performance and the EnMS

Source: "ISO 14001:2015. Environmental management systems. Requirements with guidance for use", ISO, 2015a (<https://www.iso.org/standard/69426.html>); "ISO 9001:2015. Quality management systems. Requirements", ISO, 2015b (<https://www.iso.org/standard/62085.html>); "ISO 50001:2018. Energy management systems. Requirements with guidance for use", ISO, 2018 (<https://www.iso.org/standard/69426.html>).

# Integrated management system at higher education...

compliant with ISO 9001, ISO 14001 and ISO 50001 at HEIs. Two research questions were formulated:

RQ1: Why do HEI authorities decide to integrate standardized management systems?

RQ2: How is standardized management system integration progressing, based on stages in the Deming PDCA cycle at the HEI?

The research subject was defined as an 'Integrated Quality, Environment and Energy Management System' (IQEEMS) which was implemented at the University of Applied Sciences in Nysa (UASN), Poland. To the best of the authors' knowledge, it is the only HEI in which IMS covering standardized MSs for quality, environment and energy has been implemented.

Poland is a participating member of the European Higher Education Area, which implies that Polish HEIs offer education at Bachelor's, Master's and Doctoral levels. In the academic year 2020/21, there were 368 HEIs in Poland, and they educated 1,218 thousand students (Statistics Poland, 2022). Depending on the supervisory body, HEIs are categorized as public and private. Additionally, Polish HEIs include universities, universities which have a defining word or phrase in their name (e.g. universities of technology, pedagogical universities, etc.), public higher vocational schools, and private HEIs.

The University of Applied Sciences in Nysa, Poland, is a public higher vocational school established in 2001, with seven faculties in its structure: Faculty of Jazz, Faculty of Safety Science, Faculty of Economic Sciences, Faculty of Medical Sciences, Faculty of Technical Sciences, Faculty of Health Sciences and Physical Culture, and the Faculty of Neophilology. UASN offers first-cycle studies (Engineering and Bachelor's studies) and second-cycle studies (Master's studies). The number of students in 2021 was 1,802 (The number of students in 2021 was 1,802 (<https://radon.nauka.gov.pl/>), and there are 155 academic staff at UASN (as of 1 October 2020) (University of Applied Sciences in Nysa, 2020). The main strategic goals of UASN are: (1) the highest quality of education, (2) modern and effective management of the university, and (3) the leading role of the university in the development of the region. Within each of these goals, numerous specific objectives were formulated (University of Applied Sciences in Nysa, 2020).

The UASN received three certificates confirming that:

- it applies the quality MS and meets the requirements of ISO 9001:2015 (issued by PCC-CERT, Poland),
- it applies the environmental MS and meets the requirements of ISO 14001:2015 (issued by PCC-CERT, Poland),
- it applies the energy MS and meets the requirements of ISO 50001:2018 (issued by Staunchly Management and System Services Ltd, England).

The scope of the certificates is the same in all MSs and covers consulting services, pro-innovative consulting services, training services, and informa-

tion services. It does not cover all areas of the UASN's activity. The certificates were issued in 2020, by the Polish and English certification bodies.

To answer the research questions, necessary data were collected. Yin (2015) describes six sources of data in case study research: documentation, archives, interviews, direct observations, participant observation, and physical artefacts. In this study, the authors used documentation, archives, interviews with the UASN authorities and participant observations. The documents and archives that were analyzed include: 'Integrated Quality, Environment and Energy Management System Manual', 'Quality Manual', processes and procedures, forms, documents required by particular standards, 'Quality and Environmental Policy', 'Energy Policy', resolutions and ordinances of UASN authorities regarding an IQEEMS, management review reports, audit reports, and relevant policies and strategies. In turn, interviews with the UASN authorities concerned the rationale behind integrating MSs. Also, during this research, particular effort was made in order to maintain an objective view of the results obtained. The authors conducted discussions on the objectivity of the data and tried to remove from the analyzed data about which there were objectivity concerns.

---

## Findings

---

### The expected benefits of integrating standardized management systems at UASN

The first research question concerned the rationale behind integrating standardized management systems at the University of Applied Sciences in Nysa. In general, the decision to integrate the quality MS, environmental MS, and energy MS was driven by the potential benefits the UASN authorities expected to achieve.

The benefits expected by the UASN authorities were analyzed in two stages. The first one concerned the advantages of implementing specific quality, environmental and energy MSs, and the second one related to potential benefits of integrating these systems.

There are two types of potential benefits of implementing specific MSs, presented in Table 2, and these are external and internal benefits. External benefits relate to the requirements of the UASN external environment. They include ensuring compliance with applicable legal regulations or meeting stakeholders' requirements. Internal benefits include those related to people, internal processes and the natural environment. The UASN authorities have identified the expected advantages of specific MSs implementation in the management areas of quality, environment and energy. Only in the case of quality management were no internal benefits referring to natural environment identified.

According to data, the UASN authorities decided to integrate quality MS, environmental MS and energy MS, because this was the most rational and beneficial solution for the organization. The reasons for integrating standardized MSs in the order established by

**Table 2**

*The expected benefits of implementation of quality, environment, and energy MSs by various management areas at UASN*

Categories of expected benefits	Subcategories of expected benefits	Management areas		
		Quality management	Environmental management	Energy management
External benefits	–	<ul style="list-style-type: none"> <li>Improving UASN activities to ensure UASN efficient performance and compliance with applicable legal regulations</li> </ul>	<ul style="list-style-type: none"> <li>Improving effects related to environmental protection required by stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>Compliance with legal requirements related to air quality</li> </ul>
Internal benefits	People	<ul style="list-style-type: none"> <li>Developing and constantly improving employee qualifications as well as their involvement in performed tasks</li> </ul>	<ul style="list-style-type: none"> <li>Building environmental awareness among students and employees</li> </ul>	<ul style="list-style-type: none"> <li>Building employees' awareness of energy efficiency</li> </ul>
	Processes	<ul style="list-style-type: none"> <li>More professional activity with regard to didactic, scientific, commercial and administrative processes</li> <li>Storing and using knowledge of students', employees' and clients' needs and expectations to improve internal processes</li> <li>Conducting systematic audits and system reviews as well as taking corrective and preventive actions</li> </ul>	<ul style="list-style-type: none"> <li>Achieving measurable environmental objectives</li> <li>Identifying, analyzing and evaluating risks related to environmental aspects</li> <li>Implementing the 'Environmental Protection Program and the Waste Management Plan'</li> </ul>	<ul style="list-style-type: none"> <li>Constant improvement of the UASN energy result by reducing unit energy consumption</li> <li>Supporting purchase of modern solutions which decrease total energy needs</li> <li>Optimization of energy carrier consumption through periodic inspections of machinery and equipment</li> </ul>
	Natural environment	–	<ul style="list-style-type: none"> <li>Protecting air quality and minimizing noise pollution</li> <li>Proper water and wastewater management</li> <li>Proper waste management</li> <li>Monitoring noise emission, light intensity, temperature and humidity levels in the working environment</li> </ul>	<ul style="list-style-type: none"> <li>Lower dust and gas emissions</li> <li>Lower environmental impact</li> <li>Lower consumption of energy carriers, water and heat</li> </ul>

Source: authors' own work based on internal UASN documentation.

the UASN authorities, from the most to least important, were as follows: (1) to improve the university's performance, (2) wish to adjust resources and goals, (3) the need for documentation harmonization, (4) the need to comply with legal regulations, (5) an attempt to simplify standards, (6) measures to reduce costs, (7) desire to reduce bureaucracy, and (8) the need to improve competitiveness. These reasons, which are also expected benefits, led to the decision to implement the IQEEMS in 2019. This decision was made despite the weaknesses of MSs integration that have appeared. To mention a few: a long time spent both on the development of the IMS documentation and on employee training as well as the costs related to the implementation and certification of the IMS.

**Stages of the management systems integration process at UASN**

The second research question required collecting data on how integration of the standardized management systems at UASN progressed. This process was completed in 2020. The authors attempted to incorporate the collected data into the Deming Plan-Do-Check-Act cycle.

The first activity in the Deming cycle is 'Plan'. Within this stage, the objectives of the quality, environment, and energy MSs were established. Moreover, the annual objectives of the IQEEMS were set. Next, the processes were created and the resources were specified. Finally, the risks and opportunities were identified and addressed.

## Integrated management system at higher education...

The objectives of the quality, environment and energy MSs are included in the internal UASN documentation, namely in the 'Quality and Environment Policy' and the 'Energy Policy'. They are presented in Table 3. The objectives are formulated in a general way, while the documentation on MSs includes more detailed descriptions of the objectives, along with performance indicators. These objectives are compatible with the requirements and guidelines presented in the ISO 9001, ISO 14001 and ISO 50001 standards and consistent with the relevant UASN policies. They are also measurable, monitored, communicated and updated as necessary.

Apart from that, the UASN authorities set annual objectives for IQEEMS. For example, the following objectives have been set for the 2022/2023 academic year: (1) establishing cooperation with three new enterprises, (2) launching a new study program, (3) implementing two new projects connected to the Regional Center for Knowledge Transfer and Innovative Technologies, (4) reducing the consumption of liquid fuels by 5%, (5) reducing energy consumption by 5%, (6) reducing thermal energy consumption by 5%, and (7) being registered in the GreenMetric register. The annual objectives set for IQEEMS relate to the areas of quality, environment and energy.

Next, the main, supporting and managing processes were established. The main processes include the Didactic process, Research process, and Service

activity. Among the supporting processes are: (1) Information management, (2) Continuous improvement, (3) Non-compliance control, (4) Personnel management, (5) Maintenance of facilities and equipment, and (6) International cooperation, promotion, customer and graduate satisfaction. Furthermore, three management processes were established, which were University management, Environment management, and Energy management.

Next, the resources needed to deliver results aligned to the customers' requirements were specified. The UASN authorities provided financial, human and natural resources as well as infrastructure, work environment, knowledge, and information. As people are the most valuable and critical resource, it is worth noting that UASN employees had substantive knowledge regarding MSs. Having analyzed the resources needed to deliver required results, the Rector appointed a Representative for IQEEMS.

Finally, the UASN authorities considered actions aimed at identifying and addressing risks and opportunities. Addressing both risks and opportunities establishes a basis for making IQEEMS more effective and preventing any adverse effects. A 'Risk Assessment Sheet' was developed based on the established processes. This sheet contains information about identified risks and opportunities, the extent of these risks and opportunities, the probability of occurrence, and the effects. It also states

**Table 3**  
*Objectives of the quality, environment, and energy MSs at UASN*

Name of document	Objectives of specific MSs
Quality and Environmental Policy	<ul style="list-style-type: none"> <li>• Improving the UASN processes in order to ensure that UASN tasks are implemented in an efficient, competent and timely manner</li> <li>• Collecting and using knowledge about the needs and expectations of customers, which is necessary to improve the services provided</li> <li>• Improving customer service</li> <li>• Constant improvement of qualifications and raising employees' awareness through systematic training</li> <li>• Maintaining and improving the quality and environmental MSs through systematic audits and reviews of the system, as well as implementing corrective and preventive actions</li> <li>• Improving the effects with regard to environmental protection</li> <li>• Compliance with legal requirements</li> <li>• Building environmental awareness among UASN stakeholders</li> </ul>
Energy Policy	<ul style="list-style-type: none"> <li>• Improvement of the UASN energy result and its continuous improvement</li> <li>• Purchase of modern solutions that reduce energy demand</li> <li>• Optimizing the consumption of energy carriers by conducting periodic inspections of machines and devices</li> <li>• Preference for innovative technological solutions aimed at reducing energy consumption</li> <li>• Ensuring appropriate and transparent energy carrier contracts</li> <li>• Continuous raising of employees' awareness with regard to energy efficiency and management of energy carriers</li> <li>• Hiring staff with appropriate professional qualifications</li> <li>• Communicating all aspects related to energy consumption inside and outside the UASN</li> <li>• Improving the Energy Policy</li> <li>• Conducting cyclical reviews and energy audits in order to assess and improve energy performance</li> <li>• Staff training</li> <li>• Monitoring and reporting measurements related to objectives</li> </ul>

Source: authors' own work based on internal UASN documentation.

measures for mitigating the risk. For example, in the 'Environment management' process, the risk of 'Exceeding standards and legal requirements with regard to environmental protection' was identified. The level of this risk was defined as 5 (calculated by multiplying the probability of occurrence and effects), with the probability of occurrence at 3 and the effects at 5 on a 1–5 scale. Additionally, the following measures were proposed for mitigating the risk: performing environmental audits, supervising the implementation of contracts, waste segregation, and staff training.

As part of the 'Plan' stage, a detailed schedule of integration activities was developed. The first part of this plan concerned the integration of the environmental MS with the quality MS already functioning at UASN. The second part related to the integration of these two systems with a third one, namely the energy MS.

In the next PDCA phase, 'Do', organization should implement what has been planned. In the case of UASN, the measures envisaged in the schedule of integration activities were carried out. Environmental and energy MSs were integrated with quality MS to finally create the IQEEMS (Table 4).

The two stages set out in Table 4 were of particular importance and of the longest duration. The first was 'Development of IQEEMS documentation'. The

documentation was prepared by the Representative for the IQEEMS in cooperation with the selected employees. The documentation included an organizational structure diagram, 'Quality and Environmental Policy', 'Energy Policy', list of environmental aspects, list of applicable regulations, environmental emergency plans, and the 'Integrated Quality, Environment and Energy Management Systems Manual'.

Also, the principles of internal and external communication regarding the IQEEMS were defined. Communication was necessary to popularize and to inform the academic community and interested parties about the IQEEMS. The second significant step was 'Implementation of new regulations'. The key was to ensure that people at UASN were competent through appropriate education, training or experience, and that individuals were aware of policies and goals. For this purpose, training sessions were organized for the UASN authorities and representatives of organizational units as well as for all employees and academic teachers.

In the PDCA 'Check' step, the broad performance of an organization is measured and monitored. The MSs integration process at UASN also was monitored and measured. Once the IQEEMS documentation had been drawn up and new regulations implemented, the effectiveness of IQEEMS was verified by means of an internal audit and management review (Table 5).

**Table 4**  
*Integration of environmental and energy MSs with quality MS at UASN: 'Do' stage*

No.	Activity	Description	Execution time
1	Initial environmental audit and assessment of compliance	The initial audit was carried out and document compliance with the regulations was assessed	One month
2	Drafting IQEEMS documentation	The documentation for the environmental MS in accordance with ISO 14001 and of the energy MS in accordance with ISO 50001 was produced and merged with the documentation of the quality MS in accordance with ISO 9001; Also the principles of IQEEMS communication were established	Three months
3	Implementation of new regulations	IQEEMS regulations were implemented and employees responsible for specific areas were trained	Four months

Source: authors' own work based on internal UASN documentation.

**Table 5**  
*Integration of environmental and energy MSs with quality MS at UASN: 'Check' stage*

No.	Activity	Description	Execution time
1	Internal audit	An internal audit was carried out to determine whether the IQEEMS is effectively implemented and maintained and whether it complies with the planned arrangements, namely with ISO 9001, ISO 14001, ISO 50001, UASN internal regulations, and applicable law	One month
2	Management review	Data from MSs areas were collected and analyzed; arrangements were made with regard to making the IQEEMS more effective and possibly making changes	One month (simultaneously with point 1)
3	Certification audit	A certification audit in accordance with the procedures of an independent accredited certification body was carried out.	Two months

Source: authors' own work based on internal UASN documentation.

To ensure monitoring and measurement, internal process indicators were developed and presented in a table. This table contains information about the indicators' names, indicator descriptions, expected values, the person responsible for monitoring and measurement frequency, comments, and obtained values. For example, one of the indicators was named 'Elimination of inappropriately supervised documentation' and described as the 'Number of identified cases of use of outdated documents'. The expected value was defined as zero, and the Representative for the IQEEMS was assigned as the responsible person. The measurement frequency was set as 'once a year'.

Finally, activities to improve the IQEEMS were undertaken at UASN. They represent the 'Act' stage of the PDCA cycle. These actions were mainly the outcome of the IQEEMS management review report prepared in 2020. The document stated the key areas in which the IQEEMS should be improved. More specifically, the following actions were proposed:

- organizing customized workshops on the IQEEMS for UASN employees,
- integrating IQEEMS with UASN information security requirements,
- UASN participation in the international UI Green Metric World University Ranking.

Because management reviews take place every year, the subsequent reports also contain further improvement guidelines. Since 2020, a series of corrective and preventive actions have been undertaken at UASN and their effectiveness confirmed.

---

## Discussion

---

The number of certified standardized MSs in organizations is growing (ISO, n.d.). However, it is difficult to operate multiple parallel MSs (Zeng et al., 2011). This is due to the complexity of management, lowering of management efficiency, and increasing management costs (Zeng et al., 2007). To avoid these problems, enterprises integrate single MSs, and this has many advantages (Beckmerhagen et al., 2003; Bernardo et al., 2018; Ejdy, 2011; Kafel, 2016; Khanna et al., 2010; Satolo et al., 2013; Zeng et al., 2011; Zutshi & Sohal, 2005). The benefits observed in enterprises are an incentive to integrate multiple parallel MSs in other organizations, including in HEIs. This article assumes that the process of deciding whether to integrate specific MSs takes account of the expected benefits.

The analysis shows that the benefits expected at the examined HEI are largely in line with the list of ten advantages of MSs integration proposed by Satolo et al. (2013). The similarities relate, in particular, to cost reduction, bureaucracy reduction, increased effectiveness and efficiency, harmonization of documentation, simplification of standards and requirements, increased competitiveness, resources and objectives alignment, or improved compliance with regulations. However, the importance attached to these expected IMS benefits is different in both cases. In the first case, Satolo et al. (2013) in their research show that the

most significant advantage is cost reduction. In the second case, for the examined HEI's authorities, it was improvement of the university performance. This may be due to the fact that Satolo et al. (2013) in their research focused on enterprises which strive to maximize profits, while the mission of universities covers areas of research, education and cooperation with the external environment. Thus, the notions of efficiency and performance in these two types of organizations are understood in slightly different ways.

Even though ISO 9001, ISO 14001 and ISO 50001 MSs were designed to suit almost any organization irrespective of its type, size, complexity or industry, applying it to an HEI is quite a unique process. The analysed HEI first implemented and certified quality MS. Next, the HEI authorities decided to implement and certify environmental and energy MSs and integrate these three systems. This approach is also consistent with the position presented by Abad et al. (2011), according to which most organizations introduce the specific MSs progressively, often implementing quality MS first, then environmental MS, and integrating other MSs. Importantly, quality MS, which operated at the examined HEI for several years before MSs integration, was a strong foundation that helped implement IMS. Beckmerhagen et al. (2003) point out that building IMS on the ISO 9001 foundation is recommended and a well documented approach in literature.

The analysis also shows that the process of integrating standardized MSs at the examined HEI is consistent with the model devised by Beckmerhagen et al. (2003). In the first step, 'Plan', Beckmerhagen et al. likewise proposed establishing objectives, creating processes and specifying resources. The 'Do' phase includes creating the structural organization, assigning responsibilities, training, making communication decisions, and drawing up documentation. In the model, the 'Act' stage is understood as undertaking corrective and preventive actions as well as internal and external auditing. Such activities were also identified at the examined HEI. Finally, the 'Act' stage relates to taking measures to improve. This step was mentioned in the model and implemented in the examined HEI, but with one difference, as Beckmerhagen et al. (2003) call it *business planning*.

This article is not free of limitations. The first limitation concerns the research method used, which is not generalizable in the conventional sense. In this study, the danger of a false generalization stems from the fact that only one case was analyzed, which was UASN. Therefore, in future research, it would be interesting for the authors to extend the analysis to include other HEIs with IMSs. The next limitation refers to data collection. The authors used documentation, archives, interviews with the UASN authorities and participant observations. It would be valuable to extend the sources of data collection and to include interviews with the UASN employees, especially to get to know their views about the advantages and weaknesses of MSs integration at UASN. The authors plan to conduct such interviews in future research.

## Conclusions

This paper helps to gain a better understanding of the rationale behind the standardized MSs integration at HEIs and the MSs integration process based on stages corresponding to the Plan-Do-Check-Act cycle.

The first conclusion concerns the reasons for the integrating quality, environment and energy management systems. The main reason why the authorities of the analysed HEI made the decision to integrate these three MSs was to improve university performance. This argument, as well as other reasons described in the Findings section, constitute at the same time the expected benefits of the integration. However, the question of whether these benefits will be seen remains open at the examined HEI, because its authorities have decided to check it as part of the next certification cycle, i.e. after three years of system operation. At that time, it will be possible to determine what benefits of IMS have been observed in practice. Before that happens, some advantages have already been noticed at the examined HEI, resulting both from the implementation of one of the three specific MSs (more efficient administrative processes, developing an 'Environmental Protection Program and the Waste Management Plan', greater environmental awareness among employees and students, reduction of energy consumption) and IMS as a whole (reduced bureaucracy through creating a single 'Integrated Quality, Environment and Energy Management Systems Manual' and harmonization of documentation). In the authors' opinion, the need for MSs integration was justified by the benefits it brought.

The next conclusions relate to the stages of the integration process, which correspond to the PDCA cycle. The conducted research made it possible to identify many activities carried out at the analysed HEI in the MSs integration process. In the first step, 'Plan': (1) the objectives of the quality, environment, and energy MSs as well as the objectives of IMS were established, (2) the processes were created, (3) the resources were specified, and (4) the risks and opportunities were identified and addressed. In the 'Do' phase, all actions planned in the schedule of integration activities were accomplished. IMS documentation was drawn up and new regulations were implemented. In the 'Check' stage, the broad performance of an organization is measured and monitored. Thus the effectiveness of IMS was verified by performing an internal audit as well as conducting a management review. A certification (external) audit conducted in accordance with the procedures of independent accredited certification bodies confirmed that the analysed HEI meets the requirements of ISO 9001, ISO 14001 and ISO 50001. Finally, the 'Act' stage refers to taking actions to improve. In this step, a series of corrective and preventive activities were taken. The actions identified in the research are part of all stages of the PDCA cycle. Therefore, the management systems were integrated at the examined HEI in accordance with the PDCA cycle.

## References

- Abad, J., Mondelo, P. R., & Sánchez-Toledo, A. (2011). Management systems integration – Spanish survey reveals key benefits. *ISO Focus +*, 2(1), 42–45.
- Ab Wahid, R. (2019). Sustaining ISO 9001-based QMS in higher education: a reality? *The TQM Journal*, 31(4), 563–577. <https://doi.org/10.1108/TQM-12-2018-0185>
- Basir, S. A., Davies J., Douglas, J., & Douglas, A. (2017). The influence of academic culture on quality management system ISO 9001 maintenance within Malaysian universities. *Journal of Higher Education Policy and Management*, 39(3), 320–340. <https://doi.org/10.1080/1360080X.2017.1298199>
- Beckmerhagen, I. A., Berg, H., Karapetrovic, S., & Willborn, W. W. (2003). Integration of management systems: focus on safety in the nuclear industry. *International Journal of Quality & Reliability Management*, 20(2), 209–227. <https://doi.org/10.1108/02656710310456626>
- Bernardo, M., Gotzamani K., Fotis, V., & Casadesus M. (2018). A qualitative study on integrated management systems in a non-leading country in certifications. *Total Quality Management & Business Excellence*, 29(4), 453–480. <https://doi.org/10.1080/14783363.2016.1212652>
- BSI. (2012). *PAS 99:2012 Specification of common management system requirements as a framework for integration*. British Standards Institution.
- Budzanowska-Drzewiecka, M. (2022). Studiowanie przypadków: metodyka postępowania badawczego. In: J. Bugaj, & M. Budzanowska-Drzewiecka (Eds.), *Jakość kształcenia akademickiego* (pp. 63–81). Wydawnictwo Uniwersytetu Jagiellońskiego.
- Bugdol, M., & Jedynak, P. (2015). *Integrated management systems*. Springer.
- Dahlin, G., & Isaksson, R. (2017). Integrated management systems – interpretations, results, opportunities. *The TQM Journal*, 29(3), 528–542. <https://doi.org/10.1108/TQM-01-2016-0004>
- Domingues, P., Sampaio, P., & Arezes, P. (2017). Management systems integration: survey results. *International Journal of Quality and Reliability Management*, 34(8), 1252–1294. <https://doi.org/10.1108/IJQRM-03-2015-0032>
- Ejdys, J. (2011). *Model doskonalenia znormalizowanych systemów zarządzania oparty na wiedzy*. Oficyna Wydawnicza Politechniki Białostockiej.
- Fichera, A., Volpe, R., & Cutore, E. (2020). Energy performance measurement, monitoring and control for buildings of public organizations: Standardized practices compliant with the ISO 50001 and ISO 50006. *Developments in the Built Environment*, 4, 100024. <https://doi.org/10.1016/j.dibe.2020.100024>
- Gheorghe, M., Chivu, O., & Funar, S. (2018). The importance of designing and implementing an integrated management system in ethnic higher education. *Fiabilitate i Durabilitate*, 1(21), 305–310.
- Holm, T., Vuorisalo, T., & Sammalisto, K. (2015). Integrated management systems for enhancing education for sustainable development in universities: a memetic approach. *Journal of Cleaner Production*, 106, 155–163. <https://doi.org/10.1016/j.jclepro.2014.03.048>
- ISO. (2015a). *ISO 14001:2015. Environmental management systems. Requirements with guidance for use*. <https://www.iso.org/standard/69426.html>
- ISO. (2015b). *ISO 9001:2015. Quality management systems. Requirements*. <https://www.iso.org/standard/62085.html>

ISO. (2018). *ISO 50001:2018. Energy management systems. Requirements with guidance for use*. <https://www.iso.org/standard/69426.html>

ISO. (2023). *ISO/IEC Directives, Part 1*. [https://www.iso.org/resources/publicly-available-resources.html?t=712usHn2eATZXjtj0c3F1J16gvWZXP-\\_fykOV8H1WAoImA84oAGBwILzOVFUEc46&view=documents#section-isodocuments-top](https://www.iso.org/resources/publicly-available-resources.html?t=712usHn2eATZXjtj0c3F1J16gvWZXP-_fykOV8H1WAoImA84oAGBwILzOVFUEc46&view=documents#section-isodocuments-top)

ISO. (n.d.). *The ISO Survey 2020*. Retrieved November 20, 2022 from <https://www.iso.org/the-iso-survey.html>

Kafel, P. (2016). Benefits of management systems integration. *Studia Oeconomica Posnaniensia*, 4(10), 122–133.

Karapetrovic, S., Rajamani, D., & Willborn, W. (1998). ISO 9001 quality system: an interpretation for the university. *International Journal of Engineering Education*, 14(2), 105–118.

Kaynak, H. (2003). The relationship between Total Quality Management practices and their effects on firm performance. *Journal of Operations Management*, 21(4), 405–435. [http://dx.doi.org/10.1016/S0272-6963\(03\)00004-4](http://dx.doi.org/10.1016/S0272-6963(03)00004-4)

Khanna, H. K., Laroia, S. C., & Sharma, D. D. (2010). Integrated management systems in Indian manufacturing organizations. *The TQM Journal*, 22(6), 670–686. <https://doi.org/10.1108/17542731011085339>

Pasvorarotkool, S., & Mongkon, S. (2020). Energy auditing assessment by ISO 50001 energy management standard in university building. *Spektrum Industri*, 18(2), 159–166. <https://doi.org/10.12928/si.v18i2.18396>

Price, T. J. (2005). Preaching what we practice: experiences from implementing ISO 14001 at the University of Glamorgan. *International Journal of Sustainability in Higher Education*, 6(2), 161–178. <http://dx.doi.org/10.1108/14676370510589873>

Sammalisto, K., & Brorson, T. (2008). Training and communication in the implementation of environmental management systems (ISO 14001): a case study at the University of Gävle, Sweden. *Journal of Cleaner Production*, 16(3), 299–309. <https://doi.org/10.1016/j.jclepro.2006.07.029>

Sari, K. E., & Kamalia, S. (2019). The application of environmental management system based on ISO 14001

in Brawijaya Malang University. *IOP Conference Series: Earth & Environmental Science*, IOP Publishing, 340(1), 012027. <https://doi.org/10.1088/1755-1315/340/1/012027>

Satolo, E. G., Calarge, F. A., & Miguel, P. A. (2013). Experience with an integrated management system in a sugar and ethanol manufacturing unit. Possibilities and limitations. *Management of Environmental Quality*, 24(6), 710–725. <https://doi.org/10.1108/MEQ-10-2012-0068>

Statistics Poland. (2022). *Higher education and its finances in 2021*. Statistics Poland. <https://stat.gov.pl/en/topics/education/education/higher-education-and-its-finances-in-2021,2,15.html>

Trierweiller, A. C., Bornia, A. C., Sobierajski Gisi, M. F., Spenassato, D., Severo-Peixe, B. C., & Ribeiro Rotta, M. J. (2016). An exploratory survey on the topic integrated management systems. *Brazilian Journal of Operations and Production Management*, 13(2), 184–193. <https://doi.org/10.14488/BJOPM.2016.v13.n2.a5>

University of Applied Sciences in Nysa. (2020). *Strategia PWSZ w Nysie na lata 2021–2024*. [https://arc.pwsz.nysa.pl/docs/dokumenty/814\\_uchwala\\_2-2020-2021\\_i\\_Strategia\\_137.pdf](https://arc.pwsz.nysa.pl/docs/dokumenty/814_uchwala_2-2020-2021_i_Strategia_137.pdf)

Yin, R. K. (2015). *Studium przypadku w badaniach naukowych. Projektowanie i metody*. Wydawnictwo Uniwersytetu Jagiellońskiego.

Zeng, S. X., Shi, J. J., & Lou, G. X. (2007). A synergetic model for implementing an integrated management system: an empirical study in China. *Journal of Cleaner Production*, 15(18), 1760–1767. <https://doi.org/10.1016/j.jclepro.2006.03.007>

Zeng, S. X., Xie, X. M., Tam, C. M., & Shen, L. Y. (2011). An empirical examination of benefits from implementing integrated management systems (IMS). *Total Quality Management & Business Excellence*, 22(2), 173–186. <https://doi.org/10.1080/14783363.2010.530797>

Zutshi, A., & Sohal, A. S. (2005). Integrated management system: The experiences of three Australian organisations. *Journal of Manufacturing Technology Management*, 16(2), 211–232. <https://doi.org/10.1108/17410380510576840>

**Marta Tutko**, PhD, is an assistant professor at the Faculty of Management and Social Communication, at the Jagiellonian University in Kraków, Poland. She is currently working at the Institute of Economics, Finance and Management. She holds a Ph.D. degree in Economics. Her main research interests concern quality management and quality culture, in the context of higher education.

**Piotr Woźniak**, PhD, is an assistant professor at the Faculty of Technical Sciences, at the University of Applied Sciences in Nysa, Poland. He is currently working at the Faculty of Technical Sciences. He holds a Ph.D. His priority interests are the practical implementation of quality management systems at universities.



Agnieszka  
Bekisz



Aleksandra  
Sus



Rafał  
Trzaska

## Bibliometric analysis of categories of sustainable development

### Abstract

Bibliometric analysis is a research method that is used to identify research gaps and the potential paths of empiric exploration of such categories that seemingly have been studied, but which in which enormous scientific and utilitarian capabilities remain undiscovered. Sustainable development is one such category. The purpose of this article is to present the development and evolution of scientific literature on sustainable development, and the research goal is to forecast the developmental directions for this category. Bibliometric analysis was used in the research. Scopus, the international interdisciplinary database, was the data source. Maps of co-occurrence of keywords relating to sustainable development were prepared in VOSviewer ver. 1.6.19.

The results of the research provided new and crucial knowledge about the features of contemporary literature on sustainable development, determined following analysis of the content of selected open access journals that are representative for this field. The chronological aspect of research of the concept of sustainable development was also underlined. This, in the context of management development, resulted in essential conclusions and results pointing to the potential directions of development of the analysed area. The results also identify the key publications and journals for the subject being researched. This is one of the few works which features a comprehensive bibliometric analysis of sustainable development (Díaz-López et al., 2021; Nobanee et al., 2021; Yamaguchi et al., 2023; Zhu & Hua, 2017). The added value of the analyses is the information that was prepared in the form of rankings using bibliometric indicators such as the number of citations, number of articles cited, and the map of co-cited journals.

**Keywords:** sustainable development, climate change, environmental protection, bibliometric analysis, VOSviewer program

### Introduction

In recent years, bibliometric analysis has become widely popular in the science of management and quality, including business studies (Donthu et al., 2021; Khan et al., 2021). This statistical method supports the quantitative analysis of research work and key research areas, and supports prediction of the future research (Yu et al., 2020).

The purpose of bibliometrics is to identify the studied area and pre-identify the research topics that have not been explored yet or have been explored to a minimum extent (Bonilla et al., 2015; Leydesdorff & Vaughan, 2006; Ravikumar et al., 2015). This is the first stage of seeking the scientific research gap and significant grounds for initiating specific scientific actions in the analysed area. Regular bibliometric analyses may serve as an aid in strategic management of the science sector (Podsakoff et al., 2008) and development of the R&D strategy for scientific institutions and enterprises by providing comprehensive knowledge about trends in the development of scientific studies and technologies (Landström et al., 2012; Martínez-López et al., 2018).

For ten or so years, we have seen an animated discussion on the advantages and disadvantages of bibliometric tools and methods from the viewpoint of objectivisation of and more efficient evaluation of researchers, universities, institutes and scien-

Agnieszka Bekisz, General Tadeusz Kościuszko Military University of Land Forces, Poland, <http://orcid.org/0000-0002-6386-6579>

Aleksandra Sus, General Tadeusz Kościuszko Military University of Land Forces, Poland, <http://orcid.org/0000-0002-4065-5285>

Rafał Trzaska, Wrocław University of Economics and Business, Poland, <http://orcid.org/0000-0003-0261-7496>

tific journals (Merigó & Yang, 2017). The advantages of bibliometrics include aspects such as research into citability recognized as an objective measure of the quality of a journal and the quality of scientific work, as well as comparison of scientific productivity of a researcher and university (Huchang et al., 2019). Bibliometric analysis helps to track scientific development and demonstrate the share of individual countries in global progress, while the impact factor and immediacy index are the more subtle quantitative evaluation indicators of the scientific status of a journal, which actually reflect the quality of papers published in the journal. The bibliometric approach provides the most comprehensive view of the entire scientific system, since any other study compared to it is fragmentary. A simple yet crucial principle must be remembered here, as mentioned by Ratajowski and Racki many years ago: bibliometric indicators only demonstrate the quantitative relations in scientific literature, and not the scientific value of a publication (Ratajowski & Racki, 1999). Therefore, when this method is used, particular care and prudence is necessary. This method should be used as a preliminary or pilot tool that can be applied to define the level of exploration of a specific scientific category or concept.

The concept of sustainable development has emerged as the answer to the need to limit the human activity that is destructive to the natural resources (Costanza et al., 2016; Saini et al., 2022). It is aimed at preventive elimination or at least mitigation (Liu et al., 2023) of the imbalance between economic growth and social development and between socio-economic development and nature (Qureshi et al., 2017; Weber, 2014). It is man that has for far too long failed to assume responsibility for his actions, thus lowering the quality of their own life and that of other living creatures, as exemplified for example, by diseases caused by the degradation of the environment, various kinds of pollutants, or shrinking of living space (Andersson et al., 2022).

Due to the massive interest in the concept of sustainable development on the part of science and practice, this study identifies directions in which studies in this area could proceed, and is intended to achieve the following goals:

1. Scientific goal: to present the development and evolution of scientific literature on sustainable development.
2. Research goal: to forecast further areas in which categories of sustainable development will change.

This paper consists of three main parts. The first part presents an overview of literature on the subject, which is mainly intended to identify the keywords. Next, bibliometric analysis of the categories was performed, as presented in the second part of the work. This part also describes the research methodology. The third part presents conclusions and limitations of the research conducted.

---

## Sustainable development – overview of literature

---

Concern for the state of the natural environment is one of the principal reasons for the inception of the idea of sustainable development (Trusina et al., 2021), which was promulgated at the Earth Summit conference organised by the UN in Rio de Janeiro in 1992. During the event, sustainable development was defined as development that ensures fulfilment of social needs with respect for environmental protection, without putting the existence of future generations at risk (Abbas & Sağsan, 2019; Klarin, 2018). The concept of sustainable development is to some extent an answer to the growing belief in the global accountability of societies for local changes in the environment (Zgurovsky, 2007), as well as the alarming nature of the relationship between man and the environment and the consequences thereof (Kopyrin & Vidishcheva, 2021).

Sustainable development is defined as management and shaping of the resources of the natural environment (Emas, 2015; Fukuda-Parr, 2016) and organization of societal life in a way that helps to improve it, while preserving high quality of life and proper use of natural resources, and ensuring development for the new manufacturing process (Dutta et al., 2011; Rabie, 2016). This category should be understood as a constant drive towards the best possible economic result (Dubravská et al., 2020) while respecting the natural environment and societal development (Du Pisani, 2006; Hák et al., 2016). Thus, sustainable development is social and economic development which involves the process of integrating political, social and economic actions with respect for the balance of nature and sustainability of basic natural processes. This is done to guarantee that fundamental needs of societies or citizens of contemporary and future generations are guaranteed (Act of 27 April 2001). Crucially, sustainable development should be viewed as a socially established process of adaptive change with an inherent element of change and innovation (Kemp et al., 2005).

Importantly, sustainable development should foster fulfilment of fundamental human needs and protection and development of the natural environment (Rasoolimanesh et al., 2023) and ensure social self-determination and cultural diversity (Klarin, 2018). Thus, it is an environmental-social-economic category (Kopnina, 2016).

The key assumptions behind sustainable development include liquidation of the unsustainable system of production and consumption, fighting poverty, and protection and development of the natural environment. Economic growth should result in increased social cohesion (such as prevention of discrimination and marginalization, reduction of social stratification) and help to increase the quality of the natural environment (by taking measures including those intended to mitigate the harmful impact of production and consumption on the environment and natural resources) (Robèrt et al., 2002).

It transpires that the concept of sustainable development is analysed only in terms of economic categories as the best idea to overcome the socio-economic and economic crisis. When the concept of sustainable development is explained, it is stressed that economic development takes priority (Buse & Hawkes, 2015), as conveyed in the definition, which reads that “sustainable development (...) is a socially desirable, economically expedient and ecologically desirable economic development strategy”. Given this, sustainable development and its implementation is an issue that requires in-depth consideration.

Also, the essence of sustainable development is the consent to socio-economic development in harmony with respect for the natural environment (Broman & Robèrt, 2017; Landi et al., 2022). Despite this, sustainable development does not and cannot act as a brake for economic development, but it must be an innovative approach to economic development, opposing economic growth in the traditional sense, while maintaining a high level of prosperity (Bond et al., 2001; Gull et al., 2022). Given this, sustainable development should be well-considered and properly planned taking into consideration the contemporary challenges resulting from the notion of sustainable development conceived in this way (Pradhan et al., 2017).

To sum up, sustainable development of the Earth is development that fulfils fundamental needs of all people (Tosun & Leininger, 2017), and which also ensures the protection, preservation and restoration of health and integrity of ecological systems of the Earth (Ianos et al., 2009) without compromising the ability of future generations to meet their own needs and without the risk that the limits of the Earth's endurance are exceeded.

Sustainable development is not a state, but a process. It is a fluid concept that has changed over time and in space (Littig & Griesler, 2005), yet despite being an ambiguous term, it has common elements such as prudent management of natural resources, caution with respect to the principles of environmental protection, and a long-term outlook and compliance with the socio-economic reality (Barbosa et al., 2014; Mensah, 2019). Sustainable development provides an opportunity for reducing degradation of the environment, protection of renewable and non-renewable natural values (Kaltenborn et al., 2020), changes to the consumption model, streamlining production and improvement, and creating an equal level of social well-being today and in the future (Jitmaneroj, 2016; Mio et al., 2020). Highly developed countries have a different understanding of sustainable development than developing countries (Güney, 2017), for which sustainable development is the same as development measured in terms of consumption growth indices.

Global transformation to bring about sustainable development is closely related to threats such as

climate change and environmental protection (Banuri & Opschoor, 2007; Burch et al., 2014; Swart et al., 2003). Prevention of climate change and protection of the natural environment is one of the primary challenges for contemporary society. Climate change resulting directly and indirectly from human activity puts achievement of sustainable development goals at risk (Munasinghe, 2010; Tanner & Allouche, 2011). Well-considered actions to prevent climate change and adverse consequences (adaptation to the climate change) may and should be an integral part of durable and sustainable development and reinforce each other (Robinson et al., 2006). Thus, sustainability represents the need to maintain relevant proportions, development structures and balance between the needs for development and the need to protect the environment (Toukabri & Mohamed Youssef, 2023). The feature of sustainability requires maintaining availability of environmental resources and development *per se* underlines the co-dependence of the economic, ecological and social factors in stimulating long-term economic growth and the role of the ecological conditioning of such growth.

An overview of literature produced a definition of the following keywords that were subjected to bibliometric analysis: sustainable development, climate change, environmental protection<sup>1</sup>.

### **Bibliometric analysis of categories of sustainable development – research methodology**

This article presents an overview of literature on sustainable development. The research started with a search for articles in the Scopus database, deemed to be one of the most versatile databases of reviewed journals (Ding, 2020). The Scopus international database contains the majority of relevant scientific papers which also provide built-in analytical tools for creating representative data. What is more, Scopus search results can be exported into the VOSviewer file, a program which was used in this analysis. A search was carried out in the Scopus database for the keywords sustainable development, climate change, environmental protection. The search of the Scopus database was limited to the subject comprising article titles, abstracts and keywords. Then, the results were filtered by language (English) document type (article), and research area (Business, Management and Accounting, Environmental Science, Social Sciences) which produced 27,125 articles. The article title, author names and affiliation, journal name, number, volume, pages, publication date, abstract and cited references to the bibliometric analysis were identified. The search of the Scopus database was limited to the subject comprising article titles, abstracts and keywords. Then, a prepared set of publications relating to the concept of sustainable development was analysed in a specialized program, VOSviewer.

<sup>1</sup> These words were entered into the database in the English language, thus the results obtained were also displayed in English. For the purposes of this publication, these words were translated into Polish.

Selection of publications based on search engines that utilize specific ranking algorithms creates a risk of omission of interesting papers that have been rarely cited but have a large impact potential. Consequently, it is becoming increasingly difficult to obtain a more or less comprehensive view of research in a given field and identify the research gap of interest (Wisniewski et al., 2022). Therefore, the authors applied the technique of visualisation and clustering using VOSviewer (Sanguankaw & Vathanophas, 2019).

A total of 27,125 scientific articles indexed in the Scopus database demonstrates a regular increase in interest in the subject from 2008 to 2022, as presented in Figure 1. Generally, since 2008, there have been signs of the growing popularity of the subject, although the number of publications peaked in 2022 at 5,178 articles. Thus, starting in 2008, the concept of sustainable development has enjoyed increasing interest among researchers. In addition, this trend will continue over the next few years.

Based on such deliberations regarding keywords, a query was formulated to perform a search by titles, keywords and abstracts (Chen et al., 2016) which was entered into the Scopus database in the following form:

**TITLE-ABS -KEY**  
**(sustainable AND development, AND climate**  
**AND change, AND environmental AND protection)**  
**AND (LANGUAGE, "English"))**

Keywords were selected on the basis of analysis of the literature on the subject. Reference articles included papers that addressed the subject of sustainable development in the context of climate change (Grist, 2008; Robinson & Herbert, 2001; Swart et al., 2003).

This stage is crucial, as the results may change if a different query is entered. This selection was made in accordance with the scientific goal of the paper (Wisniewski et al., 2022), which is to present the development and evolution of scientific literature on sustainable development.

## Bibliometric analysis of categories of sustainable development – study results

Figure 1 presents the distribution of annual publications and the evolution of the number of articles published. The earliest document found that applied the selected criteria was published in 2008. A regular increase in the number of publications on sustainable development was recorded over subsequent years. This means that since 2018, there has been a considerable increase in the number of these publications, which demonstrates that researchers are particularly interested in the subject of sustainable development.

The next stage of studies of bibliometric data was the analysis of citations for the countries which publish articles on the concept of sustainable development in the Scopus database. The bibliometric analysis demonstrated that English was the main language used in scientific research.

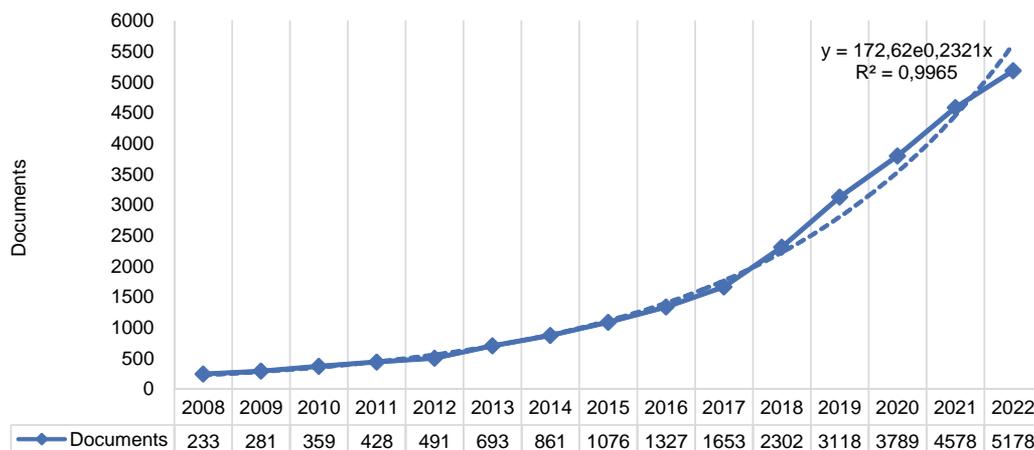
Figure 2 presents the countries with the largest number of papers on sustainable development issued from 1988 to 2021. The analysis of the countries was based on the papers which stated the address and affiliation of at least one author (Abejón et al., 2017).

In terms of the number of articles published, China was first with 5,927 published articles, followed by the United Kingdom with 4,099 published articles, and the United States with 3,442 published articles.

The bibliometric analysis presents the link between keywords (Gaviria-Marin et al., 2019) which create the network identifying the ones that appear more frequently for the studied subject (van Eck & Waltman, 2010), thus facilitating the study of concepts (keywords) and subjects (concepts grouped into clusters). This analysis was conducted in VOSviewer, which generates the visualisation and supports a multi-dimensional data representation (Pico-Saltos et al., 2021), as shown in Figure 3.

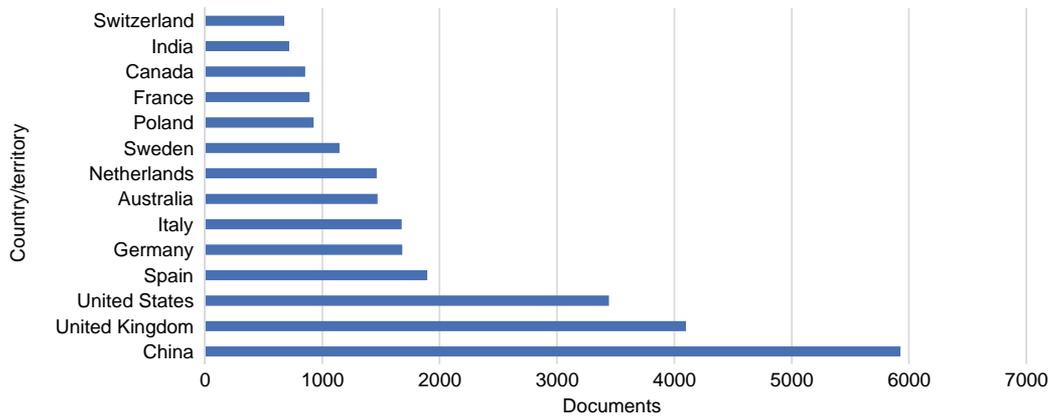
The size of individual nodes represents the number of times items occurred (the higher, the greater the number) and the affinity of items depends on the number of articles in which they were found together

**Figure 1**  
 The number of publications on the concept of sustainable development from 2008 to 2022



Source: authors' own work based on the Scopus database.

**Figure 2**  
Citations from the ten best journals from 1988 to 2021



Source: authors' own work based on the Scopus database.

(Jansen et al., 2022). The differences in cluster sizes are also presented in Figure 3. Figure 4 presents the clusters or the concepts grouped by subject, the size of which may be used to identify the preliminary research gaps.

In accordance with Figure 4:

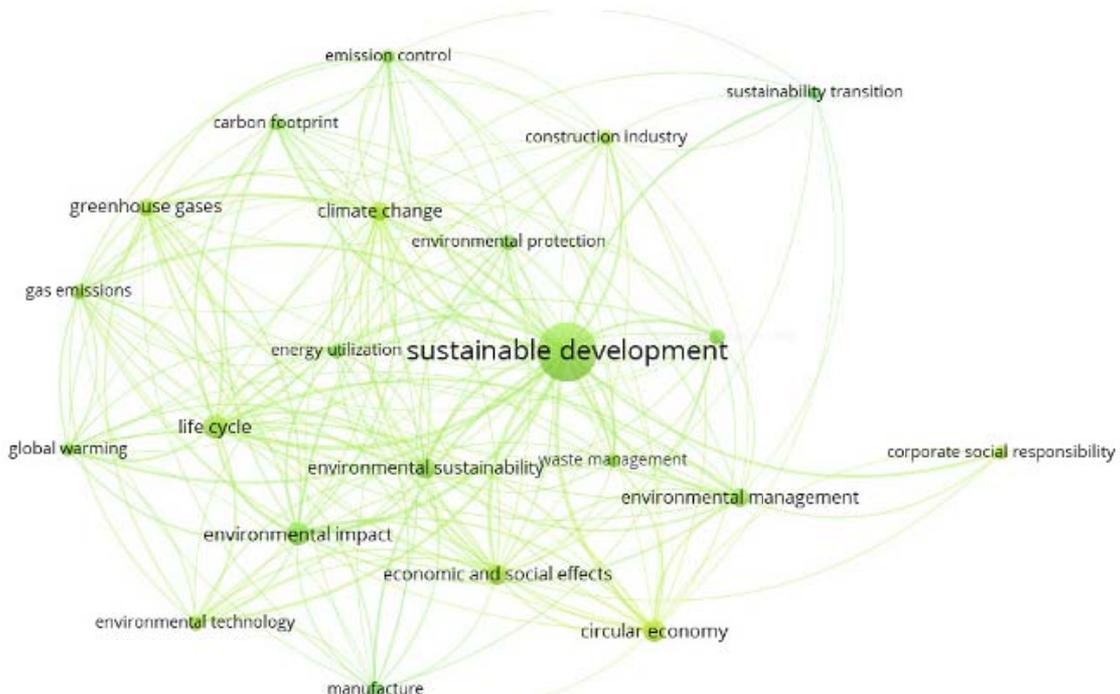
- Cluster 1 (in red) represents a research area which consists of nine nodes and is called “carbon footprint”,
- Cluster 2 (in green) represents a research area which consists of even nodes and is called “sustainable development”, because this is the definition most frequently found (2,000) in this class,

- Cluster 3 (in blue) represents a research area which consists of six nodes and is called “developing countries”, because this is the definition most frequently found (64) in this class.

Table 1 presents the list of keywords shown in Figure 4 in the form of a network (clusters). It also includes the total link strength category, which represents the number of links of a given category with other elements and/or the total power of category links with other analysed elements.

In the detailed approach, these clusters describe keywords presented in Table 2. These are those keywords which the authors of articles on sustainable development entered in their papers.

**Figure 3**  
Network of co-occurrence of keywords

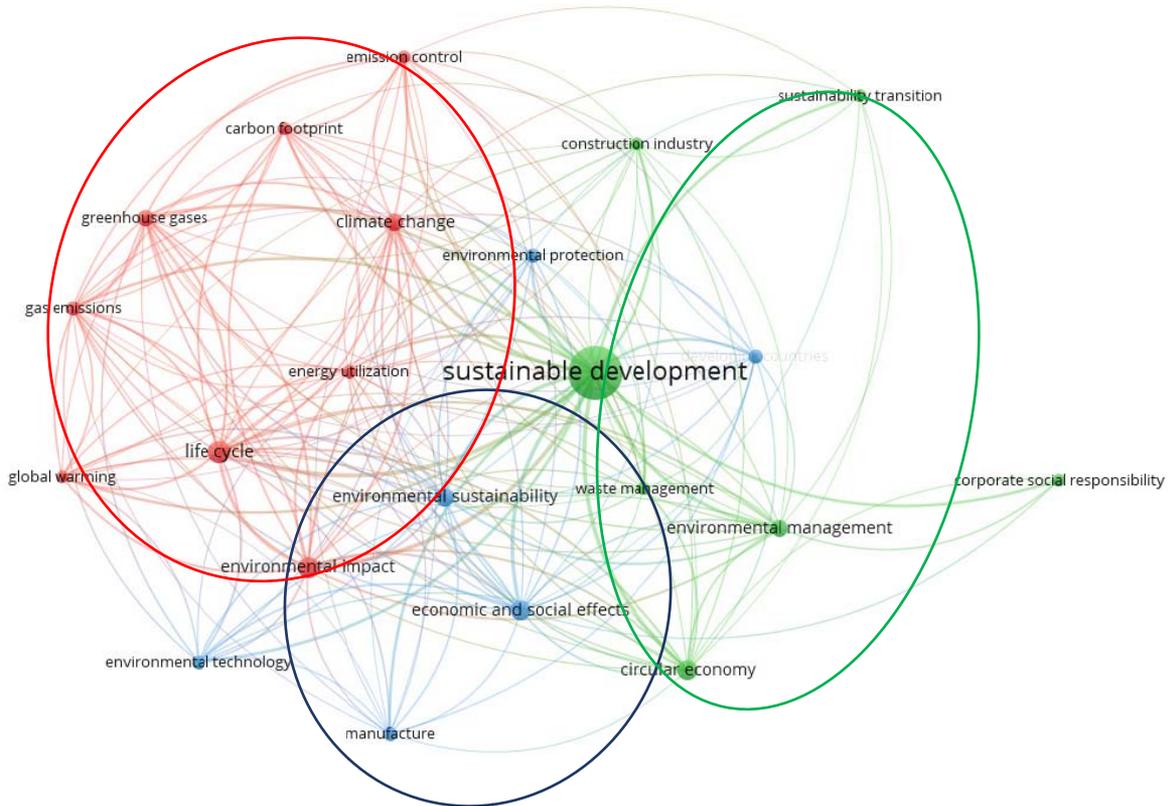


Source: authors' own work based on the Scopus database.

# Bibliometric analysis of categories of sustainable...

**Figure 4**

Network of co-occurrence of keywords relating to sustainable development created in VOSviewer



Source: authors' own work based on the Scopus database.

**Table 1**  
Keywords and their occurrence

No	Keyword	Occurrences	Total Link Strength
1*	sustainable development	2000	1942
2.	life cycle	206	664
3.	impact on the environment	177	548
4.	circular economy	164	347
5.	economic and social effects	151	379
6.	environmental sustainability	139	387
7.	climate change	117	304
8.	environmental management	113	299
9.	greenhouse gases	99	371
10.	environmental technology	72	217
11.	environmental protection	68	153
12.	energy utilization	67	204
13.	developing countries	64	134
14.	gas emissions	63	259
15.	production	61	136
16.	corporate social responsibility	60	82
17.	carbon footprint	59	197
18.	waste management	54	140
19.	emission control	53	162
20.	construction industry	52	117
21.	global warming	52	196
22.	sustainability transition	51	72

Note. \* items 1–9 describe cluster 1 elements, items 10–16 – describe cluster 2 elements, while items 17–22 describe cluster 3 elements.

Source: authors' own work based on the Scopus database.

**Table 2**

*Description of clusters in the context of keywords defined by publication authors*

Cluster number	Keywords used by authors
Cluster 1	carbon footprint, climate change, emission control, energy utilization, impact on the environment, gas emissions, global warming, greenhouse gases, life cycle (nine elements)
Cluster 2	circular economy, construction industry, corporate social responsibility, environmental management, sustainable development transformation, sustainable development, waste management (seven elements)
Cluster 3	developing countries, economic and social effects, environmental protection, environmental sustainability, environmental technology, manufacture (six elements)

Source: authors' own work based on the Scopus database.

The fundamental indicator used to determine the bibliometric characteristics of the author is the number of citations per publication. Table 3 presents the most frequently cited articles on sustainable development with the number of citations per article.

**Table 3**

*Most frequently cited articles on sustainable development*

No	Number of citations	Author/authors
1.	333	Hughes et al., 2019
2.	317	Shahbaz et al., 2019
3.	312	Bai et al., 2020
4.	254	Dubey et al., 2019
5.	247	Kivimaa et al., 2019
6.	240	Roscoe et al., 2019
7.	237	Tura et al., 2019
8.	223	Rosati & Faria, 2019
9.	213	Nižetić et al., 2020
10.	190	Kusi-Sarpong et al., 2019

Source: authors' own work based on the Scopus database.

The scope of citations ranged from 190 for the article ranked 10, to 333 for the leading article. Based on this, it was possible to determine the key moment of development of the analysed category, which was the turn of 2019 and 2020, while the categories most frequently explored in the context of sustainable development were carbon footprint, climate change, emission control, energy utilization, and impact on the environment. This means that the remaining clusters, in particular the third cluster, are essential areas where research gaps in sustainable development should be sought.

In the context of sustainable development, there is an identified research gap regarding sustainability transition, or multi-level transformation (shift, direction) of the economic system and the socio-technological system intended to achieve a low-carbon, resource-efficient and responsible economy. It transpired that this category is practically non-existent in the Polish literature (Daszyńska-Żygadło & Ryszawska, 2015, p. 63).

## Conclusion

This article presents pilot research aimed at carrying out a bibliometric analysis of sustainable development category and at identifying research and publication trends. The study was conducted using the Scopus database. The analysis identified thematic areas which are the subject of most publications on sustainable development. Such subjects certainly include areas listed in cluster one. This means that the potential research gaps should be sought in cluster three subjects.

The results of scientific studies were presented on the maps prepared in VOSviewer ver. 1.6.19.

In recent years, there have been studies to measure the level of sustainable development and socio-economic development in the comprehensive approach. This paper also underlined the growth rate in the interest in the concept of sustainable development, which helped to determine the years with the highest growth in publication works in this area, which were 2019 and 2020. There has been rapid change in interest in this category as an area of scientific research, and this has been undoubtedly an essential subject of empirical work, as proven by numerous articles in business and management journals. Therefore, it has become extremely important to determine areas that have been hardly explored or not explored at all.

Bibliometric analysis does not cover in full the issue of identification of research fields (Sikacz, 2017), and this includes with respect to sustainable development reporting. The rapid development of scientific research in multiple fields and the increasing interdisciplinary nature of such research has contributed to the development of the body of scientific knowledge, but has also made it difficult for scientists to track the current status of research. Limited cognitive resources make it impossible to conduct a complete overview of literature, and the selection of publications based on search engines that utilize specific ranking algorithms creates the risk of omission of interesting papers that have been rarely cited but have a large impact potential. Consequently, it is becoming increasingly difficult to obtain a more or less comprehensive view of research in a given field and identify the research gap of interest. In such situations, methods of data exploration and machine learning can be applied, es-

pecially as regards processing and analysis of natural language, including using tools such as VOSviewer.

The main goal of the research was assumed to be to determine the key moments of sustainable development evolution and forecast future directions in which it will develop. This goal was achieved through the bibliometric analysis of the picture of the contemporary literature on sustainable development, which proves researchers' interest in that field. The practical value of the research conducted was the information obtained about the most frequently cited authors, articles and journals. The scientific goal was to present the development and evolution of scientific literature on sustainable development, and this goal was also achieved.

In addition, secondary goals achieved during the work on this paper include: (1) identification of the most frequently cited publications, (2) identification of titles of journals of key importance for the researched area, (3) identification of the most frequently cited author and presentation of co-authorship on the subject of sustainable development.

The bibliometric analysis based on the Scopus database demonstrated the presence of publications on sustainable development. There was a considerable increase in the number of publications in that field during the researched period (2008–2022). The first papers were recorded in 2008–2011, with a rapid increase over subsequent years. This article presents a subjective evaluation of the state of literature on sustainable development. This is pilot research which provides a preliminary picture of the development of the analysed categories.

This work certainly has its limitations, for example it does not analyse Polish publications, and analyses only the Scopus database. This leaves room for further empirical explorations and the use of other keywords.

## References

- Abbas J., & Sağsan, M. (2019). Impact of knowledge management practices on green innovation and corporate sustainable development: A structural analysis. *Journal of Cleaner Production*, 229, 611–620. <https://doi.org/10.1016/j.jclepro.2019.05.024>
- Abejón, R., Pérez-Acebo, H., & Garea, A. (2017). A bibliometric analysis of research on supported ionic liquid membranes during the 1995–2015 period: Study of the main applications and trending topics. *Membranes*, 7(4), 63. <https://doi.org/10.3390/membranes7040063>
- Act of 27 April 2001 (2001). Act of 27 April 2001 on the Environmental Protection Law (Journal of Laws 2001.62.627, Article 3(50)). <https://www.global-regulation.com/translation/poland/10093814/the-act-of-27-april-2001%252c-the-environmental-protection-law.html>
- Andersson, S., Svensson, G., Molina-Castillo, F.-J., Otero-Neira, C., Lindgren, J., Karlsson, N. P. E., & Laurell, H. (2022). Sustainable development—Direct and indirect effects between economic, social, and environmental dimensions in business practices. *Corporate Social Responsibility and Environmental Management*, 29(5), 1158–1172. <https://doi.org/10.1002/csr.2261>
- Bai, C., Dallasega, P., Orzes, G., & Sarkis, J. (2020). Industry 4.0 technologies assessment: A sustainability perspective. *International Journal of Production Economics*, 229, 107776. <https://doi.org/10.1016/j.ijpe.2020.107776>
- Banuri, T., & Opschoor, H. (2007). Climate change and sustainable development. *DESA Working Paper*, 56, 1–26.
- Barbosa, G. S., Drach, P. R., & Corbella, O. D. (2014). A conceptual review of the terms sustainable development and sustainability. *International Journal of Social Sciences*, 3(2), 1–15.
- Bond, R., Curran, J., Kirkpatrick, C., Lee, N., & Francis, P. (2001). Integrated impact assessment for sustainable development: A case study approach. *World Development*, 29(6), 1011–1024. [https://doi.org/10.1016/S0305-750X\(01\)00023-7](https://doi.org/10.1016/S0305-750X(01)00023-7)
- Bonilla, C. A., Merigo, J. M., & Torres-Abad, C. (2015). Economics in Latin America: a bibliometric analysis. *Scientometrics* 105(2), 1239–1252. <https://doi.org/10.1007/s11192-015-1747-7>
- Broman, G. I., & Robèrt, K. H. (2017). A framework for strategic sustainable development. *Journal of Cleaner Production*, 140(1), 17–31. <https://doi.org/10.1016/j.jclepro.2015.10.121>
- Burch, S., Shaw, A., Dale A., & Robinson, J. (2014). Triggering transformative change: a development path approach to climate change response in communities. *Climate Policy*, 14(4), 467–487. <https://doi.org/10.1080/14693062.2014.876342>
- Buse, K., & Hawkes, S. (2015). Health in the sustainable development goals: Ready for a paradigm shift? *Globalization and Health*, 11(1), 13. <https://doi.org/10.1186/s12992-015-0098-8>
- Chen, X., Chen, J., Wu, D., Xie, Y., & Li, J. (2016). Mapping the research trends by co-word analysis based on keywords from funded project. *Procedia Computer Science*, 91, 547–555. <http://doi.org/10.1016/j.procs.2016.07.140>
- Costanza, R., Fioramonti, L., & Kubiszewski, I. (2016). The UN Sustainable Development Goals and the dynamics of well-being. *Frontiers in Ecology and the Environment*, 14(2), 59. <https://doi.org/10.1002/fee.1231>
- Daszyńska-Żygadło, K., & Ryszawska, B. (2015). Rola społecznej odpowiedzialności przedsiębiorstw w sustainability transition. *Research Papers of Wrocław University of Economics*, 395, 62–72. <http://doi.org/10.15611/pn.2015.395.06>
- Díaz-López, C., Martín-Blanco, C., De la Torre Bayo, J. J., Rubio-Rivera, B., & Zamorano, M. (2021). Analyzing the scientific evolution of the Sustainable Development Goals. *Applied Sciences*, 11(18), 8286. <https://doi.org/10.3390/app11188286>
- Ding, X. (2020). Knowledge mapping of platform research: A visual analysis using VOSviewer. *Advances in Economics, Business and Management Research*, 110, 454–463. <http://doi.org/10.2991/aebmr.k.191225.081>
- Donthu, N., Kumar, S., Pattnaik, D., & Lim, W. M. (2021). A bibliometric retrospection of marketing from the lens of psychology: Insights from Psychology & Marketing. *Psychology & Marketing*, 38(5), 834–865. <https://doi.org/10.1002/mar.21472>
- Dubey, R., Gunasekaran, A., Childe, S. J., Papadopoulos, T., Luo, S. Z., Wamba, S. F., & Roubaud, D. (2019). Can big data and predictive analytics improve social and environmental sustainability? *Technological Forecasting*

and *Social Change*, 144, 534–545. <https://doi.org/10.1016/j.techfore.2017.06.020>

Du Pisani, J. A. (2006). Sustainable development – historical roots of the concept. *Environmental Sciences*, 3(2), 83–96. <http://doi.org/10.1080/15693430600688831>

Dubravská, M., Marcheuská, M., Vašaničová, P., & Kotulič, R. (2020). Corporate Social Responsibility and Environmental Management Linkage: An Empirical Analysis of the Slovak Republic. *Sustainability*, 12(13), 5431. <https://doi.org/10.3390/su12135431>

Dutta, S., Raef Lawson, R., & Marcinko, D. (2011). Paradigms for Sustainable Development: Implications of management theory. *Corporate Social Responsibility and Environmental Management*, 19(1), 1–10. <https://doi.org/10.1002/csr.259>

Eck, N. J., van, Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538. <https://doi.org/10.1007/s11192-009-0146-3>

Emas, R. (2015). *The concept of sustainable development: Definition and defining principles*. Florida International University. <http://doi.org/10.13140/RG.2.2.34980.22404>

Fukuda-Parr, S. (2016). From the Millennium Development Goals to the Sustainable Development Goals: Shifts in purpose, concept, and politics of global goal setting for development. *Gender & Development*, 24(1), 43–52. <https://doi.org/10.1080/13552074.2016.1145895>

Gaviria-Marin, M., Merigó, J. M., & Baier-Fuentes, H. (2019). Knowledge management: A global examination based on bibliometric analysis. *Technological Forecasting and Social Change*, 140, 194–220. <https://doi.org/10.1016/j.techfore.2018.07.006>

Grist, N. (2008). Positioning climate change in sustainable development discourse. *Journal of International Development*, 20(6), 783–803. <https://doi.org/10.1002/jid.1496>

Gull, A. A., Saeed, A., Suleman, M. T., & Mushtaq, R. (2022). Revisiting the association between environmental performance and financial performance: Does the level of environmental orientation matter? *Corporate Social Responsibility and Environmental Management*, 29(5), 1647–1662. <https://doi.org/10.1002/csr.2310>

Güney, T. (2017). Governance and sustainable development: How effective is governance? *The Journal of International Trade & Economic Development*, 26(3), 316–335. <https://doi.org/10.1080/09638199.2016.1249391>

Hák, T., Janoušková, S., & Moldan, B. (2016). Sustainable Development Goals: A need for relevant indicators. *Ecological Indicators*, 60, 565–573. <http://dx.doi.org/10.1016/j.ecolind.2015.08.003>

Huchang, L., Ming T., Zongmin, L., & Lev, B. (2019). Bibliometric analysis for highly cited papers in operations research and management science from 2008 to 2017 based on Essential Science Indicators. *Omega*, 88, 223–236. <https://doi.org/10.1016/j.omega.2018.11.005>

Hughes, L., Dwivedi, K. Y., Misra, S. K., Rana, N. P., Raghavan, V., & Akella, V. (2019). Blockchain research, practice and policy: Applications, benefits, limitations, emerging research themes and research agenda. *International Journal of Information Management*, 49, 114–129. <https://doi.org/10.1016/j.ijinfomgt.2019.02.005>

Ianos, I., Peptenatu, D., & Zamfir, D., (2009). Respect for environment and sustainable development. *Carpathian Journal of Earth and Environmental Sciences*, 4(1), 81–93.

Jansen, A., Dima, A. M., Biclesanu, I., & Point, S. (2022). Research topics in career success throughout time:

A bibliometric analysis. *Management & Marketing*, 17(3), 292–305. <https://doi.org/10.2478/mmcks-2022-0016>

Jitmaneroj, B. (2016). Reform priorities for corporate sustainability. Environmental, social, governance, or economic performance? *Management Decision*, 54(6), 1497–1521. <https://doi.org/10.1108/MD-11-2015-0505>

Kaltenborn, M., Krajewski, M., & Kuhn, H. (Eds.). (2020). *Sustainable development goals and human rights*. Springer Nature. <https://doi.org/10.1007/978-3-030-30469-0>

Kemp, R., Parto S., & Gibson, R. B. (2005). Governance for sustainable development: moving from theory to practice. *International Journal of Sustainable Development*, 8(1/2), 12–30. <https://doi.org/10.1504/IJSD.2005.007372>

Khan, M. A., Pattnaik, D., Ashraf, R., Ali, I., Kumar, S., & Donthu, N. (2021). Value of special issues in the Journal of Business Research: A bibliometric analysis. *Journal of Business Research*, 125, 295–313. <https://doi.org/10.1016/j.jbusres.2020.12.015>

Kivimaa, P., Boon, W., Hyysalo, S., & Klerkx, L. (2019). Towards a typology of intermediaries in sustainability transitions: A systematic review and a research agenda. *Research Policy*, 48(4), 1062–1075. <https://doi.org/10.1016/j.respol.2018.10.006>

Klarin, T. (2018). The Concept of Sustainable Development: From its beginning to the contemporary issues. *Zagreb International Review of Economics and Business*, 21(1), 67–94. <http://doi.org/10.2478/zireb-2018-0005>

Klarin, T. (2018). The concept of sustainable development: From its beginning to the contemporary issues. *Zagreb International Review of Economics & Business*, 21(1), 67–94. <http://doi.org/10.2478/zireb-2018-0005>

Kopnina, H. (2016). The victims of unsustainability: a challenge to sustainable development goals. *International Journal of Sustainable Development & World Ecology*, 23(2), 113–121. <https://doi.org/10.1080/13504509.2015.1111269>

Kopyrin, A., & Vidishcheva, E. (2021). The impact of tourist flows on the sustainable development of a tourist destination. *IOP Conference Series: Earth and Environmental Science*, 937(421). <http://doi.org/10.1088/1755-1315/937/4/042031>

Kusi-Sarpong, S., Gupta, H., & Sarkis, J. (2019). A supply chain sustainability innovation framework and evaluation methodology *International Journal of Production Research*, 57(7), 1990–2008. <https://doi.org/10.1080/00207543.2018.1518607>

Landi, G. C., Iandolo, F., Renzi, A., & Rey, A. (2022). Embedding sustainability in risk management: The impact of environmental, social, and governance ratings on corporate financial risk. *Corporate Social Responsibility and Environmental Management*, 29(4), 1096–1107. <https://doi.org/10.1002/csr.2256>

Landström, H., Harirchi, G., & Åström, F. (2012). Entrepreneurship: Exploring the knowledge base. *Research Policy*, 41(7), 1154–1181. <https://doi.org/10.1016/j.respol.2012.03.009>

Leydesdorff, L., & Vaughan, L. (2006) Co-occurrence matrices and their applications in information science: Extending ACA to the web environment. *Journal of the American Society for Information Science and Technology*, 57, 1616–1628. <https://doi.org/10.48550/arXiv.0911.3422>

Littig, B., & Grießler, E. (2005). Social sustainability: a catchword between political pragmatism and social theory. *International Journal of Sustainable Development*, 8(1/2), 65–79. <http://www.doi.org/10.1504/IJSD.2005.007375>

- Liu, Y., Huang, B., Guo, H., Liu, J. (2023). A big data approach to assess progress towards Sustainable Development Goals for cities of varying sizes. *Communications Earth and Environment*, 4(1). <https://doi.org/10.1038/s43247-023-00730-8>
- Martínez-López, F. J., Merigó, J. M., Valenzuela-Fernández, L., & Nicolás, C. (2018). Fifty years of the *European Journal of Marketing*: A bibliometric analysis. *European Journal of Marketing*, 52(1–2), 439–468. <https://doi.org/10.1108/EJM-11-2017-0853>
- Mensah, J. (2019). Sustainable development: Meaning, history, principles, pillars, and implications for human action: Literature review. *Cogent Social Sciences*, 5(1), 1653531. <https://doi.org/10.1080/23311886.2019.1653531>
- Merigó, J. M., & Yang, J.-B. (2017). A bibliometric analysis of operations research and management science. *Omega*, 73, 37–48. <https://doi.org/10.1016/j.omega.2016.12.004>
- Mio, Ch., Panfilo, S., & Blundo, B. (2020). Sustainable development goals and the strategic role of business: A systematic literature review. *Business Strategy and the Environment*, 29(8), 3220–3245. <https://doi.org/10.1002/bse.2568>
- Munasinghe, M. (2010). Addressing the sustainable development and climate change challenges together: Applying the sustainability framework. *Procedia – Social and Behavioral Sciences*, 2(5), 6634–6640. <http://doi.org/10.1016/j.sbspro.2010.05.005>
- Nižetić, S., Šolić, P., López-de-Ipiña González-de-Artaza, D., & Patrono, L. (2020). Internet of Things (IoT): Opportunities, issues and challenges towards a smart and sustainable future. *Journal of Cleaner Production*, 274, 122877. <https://doi.org/10.1016/j.jclepro.2020.122877>
- Nobanee, H., Al Hamadi, F. Y., Abdulaziz, F. A., Abukarsh, L. S., Alqahtani, A. F., AlSubaey, S. K., Alqahtani, S. M., & Almansoori, H. A. (2021). A bibliometric analysis of sustainability and risk management. *Sustainability*, 13(6), 3277. <https://doi.org/10.3390/su13063277>
- Pico-Saltos, R., Carrión-Mero, P., Montalván-Burbano, N., Garzás, J., & Redchuk, A. (2021). Research trends in career success: A bibliometric review. *Sustainability*, 13(4625). <https://doi.org/10.3390/su13094625>
- Podsakoff, P. M., MacKenzie, S. B., Podsakoff, N. P., & Bachrach, D. G. (2008). Scholarly influence in the field of management: A bibliometric analysis of the determinants of university and author impact in the management literature in the past quarter century. *Journal of Management*, 34(4), 641–720. <https://doi.org/10.1177/0149206308319533>
- Pradhan, P., Costa, L., Rybski, D., Lucht, W., & Kropp, J. P. (2017). A systematic study of Sustainable Development Goal (SDG) interactions. *Earth's Future*, 5(11), 1169–1179. <https://doi.org/10.1002/2017EF000632>
- Qureshi, M. I., Hassan, M. A., Hishan, S., Rasli, A., & Zaman, K. (2017). Dynamic linkages between sustainable tourism, energy, health and wealth: Evidence from top 80 international tourist destination cities in 37 countries. *Journal of Cleaner Production*, 158, 143–155. <https://doi.org/10.1016/j.jclepro.2017.05.001>
- Rabie, M. (2016). Meaning of Sustainable Development. In *A theory of sustainable sociocultural and economic development* (pp. 17–31). [http://doi.org/10.1007/978-1-137-57952-2\\_3](http://doi.org/10.1007/978-1-137-57952-2_3)
- Rasoolimanesh, S. M., Ramakrishna, S., Hall, C. M., Esfandiari, K., & Seyfi, S. (2023). A systematic scoping review of sustainable tourism indicators in relation to the sustainable development goals. *Journal of Sustainable Tourism*, 31(7), 1497–1517. <http://doi.org/10.1080/09669582.2020.1775621>
- Ratajewski, J., & Racki, G. (1999). Naukometria, bibliometria, publikacje, cytowania. *Gazeta Uniwersytecka Uniwersytetu Śląskiego*, 8(64). <https://gazeta.us.edu.pl/node/192691>
- Ravikumar, S., Agrahari, A., & Singh, S. N. (2015). Mapping the intellectual structure of scientometrics: a co-word analysis of the journal *Scientometrics* (2005–2010). *Scientometrics*, 102(1), 929–955. <http://doi.org/10.1007/s11192-014-1402-8>
- Robèrt, K.-H., Schmidt-Bleek, B., Aloisi de Larderel, J., Basile, G., Jansen, J. L., Kuehr, R., Price Thomas, P., Suzuki, M., Hawken, P., & Wackernagel, M. (2002). Strategic sustainable development — selection, design and synergies of applied tools. *Journal of Cleaner Production*, 10(3), 197–214. [https://doi.org/10.1016/S0959-6526\(01\)00061-0](https://doi.org/10.1016/S0959-6526(01)00061-0)
- Robinson, J., Bradley, M., Busby, P., Connor, D., Murray, A., Sampson, B., & Soper, W. (2006). Climate change and sustainable development: Realizing the opportunity. *Ambio*, 35(1), 2–8.
- Robinson, J. B., & Herbert, D. (2001). Integrating climate change and sustainable development. *International Journal of Global Environmental Issues*, 1(2), 130–149. <https://doi.org/10.1504/IJGENVI.2001.000974>
- Rosati, F., & Faria, L. G. D. (2019). Addressing the SDGs in sustainability reports: The relationship with institutional factors. *Journal of Cleaner Production*, 215, 1312–1326. <https://doi.org/10.1016/j.jclepro.2018.12.107>
- Roscoe, S., Subramanian, N., Jabbour, C. J. C., & Chong, T. (2019). Green human resource management and the enablers of green organisational culture: Enhancing a firm's environmental performance for sustainable development. *Business Strategy and the Environment*, 28(5), 737–749. <https://doi.org/10.1002/bse.2277>
- Saini, N., Singhania, M., Hasan, M., Yadav, M. P., & Abedin, M. Z. (2022). Non-financial disclosures and sustainable development: A scientometric analysis. *Journal of Cleaner Production*, 381(1), 135173. <https://doi.org/10.1016/j.jclepro.2022.135173>
- Sanguankaew, P., & Vathanophas, R. V. (2019). Bibliometric review of research on knowledge management and sustainability, 1994–2018. *Sustainability*, 11(16), 4388. <https://doi.org/10.3390/su11164388>
- Shahbaz, M., Balsalobre-Lorente, D., & Sinha, A. (2019). Foreign direct investment–CO2 emissions nexus in Middle East and North African countries: Importance of biomass energy consumption. *Journal of Cleaner Production*, 217, 603–614. <https://doi.org/10.1016/j.jclepro.2019.01.282>
- Sikacz, H. (2017). CSR reporting as an object of bibliometric analysis of scientific publications. *Research Papers Of Wrocław University of Economics*, 474, 160–1689. <https://doi.org/10.15611/pn.2017.474.14>
- Swart, R., Robinson, J., & Cohen, S. (2003). Climate change and sustainable development: Expanding the options. *Climate Policy*, 3(1), 19–40. <http://doi.org/10.1016/j.clipol.2003.10.010>
- Tanner, T., & Allouche, J. (2011). Towards a new political economy of climate change and development. *IDS Bulletin, Political Economy of Climate Change*, 42(3), 1–14. <https://doi.org/10.1111/j.1759-5436.2011.00217.x>
- Tosun, J., & Leininger, J. (2017). Governing the inter-linkages between the sustainable development goals:

Approaches to attain policy integration. *Global Challenges*, 1(9). <http://doi.org/10.1002/gch2.201700036>

Toukabri, M., & Mohamed Youssef, M. A. (2023). Climate change disclosure and sustainable development goals (SDGs) of the 2030 agenda: the moderating role of corporate governance. *Journal of Information, Communication and Ethics in Society*, 21(1), 30–62. <https://doi.org/10.1108/JICES-02-2022-0016>

Trusina, I., & Jermolajeva, E. (2021). The scientific discourse on the concept of sustainable development. *Eastern Journal of European Studies*, 12(2), 298–322.

Tura, N., Hanski, J., Ahola, T., Stähle, M., Piiparinen, S., & Valkokari, P. (2019). Unlocking circular business: A framework of barriers and drivers. *Journal of Cleaner Production*, 212, 90–98. <https://doi.org/10.1016/j.jclepro.2018.11.202>

Weber, O. (2014). The financial sector's impact on sustainable development. *Journal of Sustainable Finance & Investment*, 4(1), 1–8. <http://doi.org/10.1080/20430795.2014.887345>

Wisniewski, M., Gladysz, B., Ejsmont, K., Wodecki, A., & Van Erp, T. (2022). Industry 4.0 solutions impacts on critical infrastructure safety and protection—A systematic

literature review. *IEEE Access*, 10, 82716–82735. <https://doi.org/10.1109/access.2022.3195337>

Yamaguchi, N. U., Bernardino, E. G., Ferreira, M. E. C., de Lima, B. P., Pasotini, M. R., & Yamaguchi, M. U. (2023). Sustainable development goals: a bibliometric analysis of literature reviews. *Environmental Science and Pollution Research*, 30(3), 5502–5515. <https://doi.org/10.1007/s11356-022-24379-6>

Yu, Y., Li, Y., Zhang, Z., Gu, Z., Zhong, H., Zha, Q., Yang, L., Zhu, C., & Chen, E. (2020). A bibliometric analysis using VOSviewer of publications on COVID-19. *Annals of Translational Medicine*, 8(13), 816–816. <https://doi.org/10.21037/atm-20-4235>

Zgurovsky, M. (2007). Impact of the information society on sustainable development: Global and regional aspects. *Data Science Journal*, 6, 137–145. <http://doi.org/doi:10.2481/dsj.6.S137>

Zhu, J., & Hua, W. (2017). Visualizing the knowledge domain of sustainable development research between 1987 and 2015: A bibliometric analysis. *Scientometrics*, 110(2), 893–914. <https://doi.org/10.1007/s11192-016-2187-8>

**Agnieszka Bekisz** currently works as a lecturer at the Military University of Land Forces in Wrocław, Faculty of Management and Leadership. The author of numerous scientific papers published in Poland and worldwide. A member of the Polish Statistical Association and the Polish Logistics Association. Areas of interest include risk management in organizations, international transport, and sustainable development.

**Aleksandra Sus** is an associate professor at the General Tadeusz Kościuszko Military University of Land Forces, Faculty of Management and Leadership. She is also the Head of the Institute of Management. Her research interests include strategic management in the context of opportunities and real options. She deals with identification of the characteristic nature of inter-organisational networks and technological risk in the context of Industry 4.0. Her main areas of scientific interest include issues related to ensuring sustainable development and the effectiveness of enterprise operations in exceptionally complex and dynamic environments.

**Rafał Trzaska**, Doctor of Economics, specializes in management sciences. The author of over twenty publications, mainly on business models, digital transformation and strategy. His scientific interests include Industry 4.0, inter-organisational networks, and technological risk. He works at the Wrocław University of Economics and Business, Department of Management and Entrepreneurship.

## WE RECOMMEND



### International Academic Conferences, March 22–23, 2024, Prague, Czech Republic

International Academic Conferences are an important international gathering of scholars, educators and PhD students. Conference organized by the Czech Institute of Academic Education, z.s. in cooperation with the Czech Technical University in Prague. Conference topics:

- Management, Economics and Marketing
- Teaching, Learning and E-learning
- Transport, Logistics, Tourism and Sport Science

More information at: [www.conferences-scientific.cz](http://www.conferences-scientific.cz)

„E-mentor“ is one of the International Academic Conferences supporting journals.



Paweł  
Antonowicz



Kamila  
Migdał-  
Najman



Krzysztof  
Najman

# Financial predictors of corporate insolvency – assessment of the forecast horizon of variables in models of early warning against corporate bankruptcy

## Abstract

The authors of the study put forward a hypothesis that it is possible to extend the forecast period for the models of discriminant analysis used to assess the risk of enterprise bankruptcy, focusing on the components of these functions in the form of one-dimensional predictors, i.e. the indicators most frequently included in the discriminant functions developed in Poland. Early warning about the growing risk of bankruptcy would be very valuable for any company. The dataset was constructed from all enterprises in Poland that went bankrupt in the years 2007–2013, which was the end of the research project period. Out of the 4,750 business entities that went bankrupt at that time, 2,739 filed financial statements with commercial courts. The main objective was realized using dynamic assessment of the variability of selected one-dimensional predictors of bankruptcy for all of these enterprises. Assessment of the time variability of the indicators under analysis allows conclusions on the predictive possibilities associated with early warning against insolvency of business entities. The results constitute input to the discussion on determination of the longest prognostic horizon that can be adopted in the models of discriminant analysis used to assess the risk of enterprise bankruptcy. Most of them cover an annual forecasting horizon. Only a few authors have attempted to construct models based on data from the two, three, or even four years preceding bankruptcy. The study showed that the main symptoms of the growing risk of bankruptcy in most of the surveyed enterprises are visible much earlier than one year before bankruptcy. This provides an opportunity to correct the predictive models and more time to restructure the company, to prevent bankruptcy. Therefore, the authors of the study have assessed the possibility of extending this forecast period.

**Keywords:** bankruptcy, insolvency, forecasting, financial analysis, early warnings

---

## Introduction

---

The contemporary approach to financial analysis goes beyond the hitherto accepted *post factum* inference, and thus encourages analysts not only to draw *ex post* conclusions, but above all to perform so-called prospective inference. Such inference assumes the possibility of signaling potential adverse changes that may occur in the future in an enterprise, which are noticeable in advance based on financial statement analysis. In the literature on the subject, the trend related to building new models of early warning against enterprise bankruptcy and to the testing of the existing ones has been explored ever since the 1960s. (Altman, 1968; Beerman, 1976; Jacobs, 1994; Legault, 1987; Weinrich, 1978). Many of them were developed using discriminant analysis, which usually allows a dichotomous classification of the object tested into one of two categories: at risk of bankruptcy vs. not at risk of bankruptcy. The authors made numerous attempts to improve the models, including by trying to extend the forecast period as much as possible – up to four years preceding bankruptcy (Beerman, 1976; Rogowski, 1999). Usually, however, most of the researchers ultimately proposed models allowing a one-

---

Paweł Antonowicz, University of Gdańsk, Poland,  <https://orcid.org/0000-0002-8673-1044>

Kamila Migdał-Najman, University of Gdańsk, Poland,  <https://orcid.org/0000-0003-4106-2964>

Krzysztof Najman, University of Gdańsk, Poland,  <https://orcid.org/0000-0003-1673-2858>

year forecast bankruptcy risk forecast period, stating at the same time that extension of this period would significantly weaken the model's predictive properties. However, these studies only took into account the values of selected indicators, and not their variability or rate of change. Taking into account the variability of indicators may enable the forecast horizon to be extended without a significant deterioration in the quality of the forecasts.

The authors of the study hypothesized that it is possible to extend the forecast horizon of bankruptcy prediction models by taking into account the variability of indicators most often used in prediction models developed in Poland (Antonowicz, 2015a; Korol, 2010; Maciejczak, 2008; Mączyńska, 2004). For this purpose, the variability of seven selected financial analysis indicators was examined in the four years preceding court declaration of bankruptcy of 2,739 companies that went bankrupt in 2007–2013.

These enterprises constituted a set of all business entities, which during the research period: (1) went bankrupt in Poland, and (2) filed annual financial statements with commercial courts (in accordance with the statutory requirements). The financial analysis indicators adopted for the study represent all the major groups of financial indicators, i.e.: (1) the financial liquidity ratios; (2) the debt service capability assessment ratios; (3) the ratios of business activity profitability; (4) the ratios of productivity of the assets engaged in the economic processes; and (5) the business activity and turnover ratios (selected two components of the cash conversion cycle) (Antonowicz, 2014). As such, a deliberately selected set of the following financial analysis indicators was analyzed in the study:

- [W1] the liquidity ratio – constituting the ratio of current assets to current liabilities, both assumed at the end of each financial year, without averaging the balance sheet items (Bednarski, 2007; Krajewski, 2009; Nehrebecka & Dzik, 2012; Sierpińska & Jachna, 2004);

$$[W1] = \text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

- [W2] the debt ratio – being the ratio of long-term and short-term debt to the total amount of the capital employed in the business activity, calculated without an annual average;

$$[W2] = \text{Debt ratio} = \frac{\text{Long – term and short – term liabilities}}{\text{Total assets}}$$

- [W3] the adjusted capital debt repayment capacity ratio – constituting the ratio of a net financial result, corrected (positive adjustment) by the amount of amortization write-offs, to the long-term and short-term debt, calculated by averaging of the balance sheet amounts;

$$[W3] = \text{Adjusted debt ratio} = \frac{\text{Net cash flow}}{\text{Total liabilities}}$$

- [W4] the receivables turnover ratio, in days – constituting a quotient of the product of the value of short-term receivables (assumed on an annual average basis) and the number of 365 days in relation to the revenues generated from the sale of products, goods and materials (Richards & Laughlin, 1980; Zaleska, 2012);

$$[W4] = \text{Receivables turnover ratio (in days)} = \frac{\text{Short – term receivables} \cdot 365}{\text{Sales revenues}}$$

- [W5] debt turnover ratio – being a quotient of the product of the value of short-term liabilities (assumed on an annual average basis) and the number of 365 days in relation to the revenues generated from the sale of products, goods and materials;

$$[W5] = \text{Liabilities turnover ratio (in days)} = \frac{\text{Short – term liabilities} \cdot 365}{\text{Sales revenues}}$$

- [W6] the return on sales ratio – being a quotient of the result on sales in relation to the generated sales revenues, assumed at the end of reporting periods (Michalski, 2008; Skoczylas, 2009);

$$[W6] = \text{Return On Sales (ROS)} = \frac{\text{Operating profit margin}}{\text{Sales revenues}}$$

- [W7] the asset productivity ratio – calculated on an annual average basis, as a quotient of the revenues generated from the sale of products, goods and materials in relation to the average annual value of the balance sheet total.

$$[W7] = \text{Productivity ratio of assets} = \frac{\text{Sales revenues}}{\text{Total assets}}$$

---

### Methodology and organization of the research process

---

The basis for conducting research on the assessment of time volatility of financial analysis indicators in the four years preceding court declarations of bankruptcy of enterprises entails collection of appropriately rich analytical material, in the form of

financial data obtained from these entities. For this purpose, a database was constructed of all enterprises in Poland that went bankrupt in the years 2007–2013 (during the 7-year period of data collection). Out of the 4,750 business entities that went bankrupt at that time, 2,739 filed financial statements with commercial courts. These entities' reports from the last five years – preceding declaration of bankruptcy, were obtained through cooperation with one of the largest business intelligence agencies in Europe – InfoVeriti sp. z o.o. As such, 58% of the bankruptcy petitions filed in this period were subject to indicator analysis. The fact that in those years, on average, about 25% of bankruptcies involved non-agricultural business activity of natural persons is noteworthy (Antonowicz, 2015b). These entities do not usually maintain comprehensive bookkeeping and they settle their accounting on the basis of a revenue and expenses ledger, which, by definition, excludes these entities from a subjective indicator study.

Therefore, it can be estimated that the study actually covered not 58%, but about 77% of entities that declared bankruptcy in 2007–2013 and which, in accordance with the Accounting Act (Journal of Laws 1994, No. 121, item 591), were required to submit at least two of the five basic reporting elements, in the form of balance sheets and profit and loss accounts.

By analyzing the time variability  $t_{-4}$  to  $t_{-1}$  (from four years prior to bankruptcy to one year before declaration of bankruptcy) of the financial analysis indicators selected, the authors assessed the changes in these indicators both in their entirety (for all objects) and broken down into bankruptcy declared in the subsequent seven years (separately). The objects were divided in terms of the bankruptcy year, in order to determine whether the directions of the changes in these indicators vary significantly, depending on the year in which bankruptcy was declared.

This allowed a research hypothesis to be formulated regarding a relatively stable rate of change in the examined indicators in the four years preceding the announcement of bankruptcy by a court.

Confirmation of the hypothesis formulated in this way would allow inference on the grounds of updating the structural parameters of discriminant functions (which are used to anticipate enterprise bankruptcy) rather than making changes to their components in the form of previously selected financial analysis indicators.

---

### Data analysis and results

---

The liquidity ratio, which is one of the most commonly used variables in the models of early warning against enterprise bankruptcy (Antonowicz, 2011a; Antonowicz, 2013) four years before declaration of bankruptcy, assumed, on average, the value of 1.37 j. (Figure 1, Table 2 in the appendix). This indicator is a neutral variable, i.e. it is postulated to accept values within a given range of variation. However, within the range desired, from the perspective of an assessment

of its predictive capabilities, it behaves like a stimulant. Therefore, in the period preceding declaration of bankruptcy, the average level of financial liquidity in the entities examined gradually decreased (this is visible at the level of the chain index of the dynamics, Table 2). Three years prior to the bankruptcy, [W1] accounted for 80% of the value from the year before; similarly, in subsequent periods, this was 72% and 53% one year prior to declaration of bankruptcy ( $t_{-1}$ ), in relation to its average value calculated for the period  $t_{-2}$ . A year before the declaration of bankruptcy, on average, current liabilities were covered by current assets in 73% of the entities examined. The low level of standard deviation volatility (Table 1 in the appendix) might infer that, regardless of the moment when an entity goes bankrupt, the nature of the changes in financial liquidity of the enterprises going bankrupt is analogous. The research results coincide almost entirely with the research conducted by Antonowicz in 2003–2007, which showed that for a year prior to declaration of bankruptcy from the years 2003–2004, this indicator amounted to 0.72 j. (Antonowicz, 2009). Thus it can be assumed that this measure has such good predictive properties (which in most cases is an early warning *de facto* identical to its discriminant abilities) that its behavior in the period preceding the court announcement of enterprise bankruptcy is analogical, irrespective of the period assumed.

The second measure analyzed was an indicator of debt structure, often used in early warning systems. While the use of external financing may, at a sufficient level of financial leverage, be beneficial for an enterprise, from the perspective of its financial credibility, this measure should be considered as an inhibitor. Assuming the solvency criterion described in articles 10 and 11 of the Bankruptcy Act (Journal of Laws of 2003, No. 60, item 535), not only in the form of: (1) adequate coverage of short-term liabilities in the possibly liquid current assets, and (2) a correct, i.e. proportional length of the components of the cash conversion cycle, but also (3) an appropriate level of debt servicing capacity, its final assessment will also be affected by the entity's ability to self-finance its business operations. In accordance with the adopted standards for assessment of economic entities, equity should most often cover, in the long term, the assets (fixed assets) used by the enterprise. Four years prior to bankruptcy, the entities financed on average 77% of their business activity from external sources. For two consecutive years, they only slightly increased the percentage of long-term and short-term liabilities, ultimately exceeding their total assets a year prior to bankruptcy (i.e. 120%, Table 2 in the appendix). This situation, apart from the growing level of indebtedness, had to be reflected in the net losses of these entities, the value of which exceeded the initial founding capital (negative equity), which *de facto* meant "balance sheet bankruptcy" described in article 11.1 item 2 of the Bankruptcy Act (Journal of Laws of 2003, No. 60, item 535). As the third indicator [W3] analyzed shows – a negative value of the repayment capacity

ratio, corrected (*positive adjustment*) with depreciation write-offs, was adopted as early as two years prior to bankruptcy. The average rate of the value of the changes was highest one year prior to declaration of bankruptcy (in the period  $t_{-1} = 329\%$ , Table 2 in the appendix).

When assessing enterprise survivability on the market, proper management of the terms of deferred repayment of short-term liabilities [W5], in relation to the receivables collection period [W4], is also very important. Both these measures (expressed in days) reflect the company's ability to adequately regulate financial flows, as analyzed next to the inventory turnover cycle in the cash conversion cycle (Antonowicz, 2011b; Majeed et al., 2013; Murugesu, 2013). While it can still be assumed that the receivables collection period (Table 2, Figure 4 in the appendix) only slightly increases in the four years before bankruptcy, reaching 92 days in the  $t_{-1}$  period, absolutely adverse changes should be emphasized in the current liabilities rotation, which in the same period increase to an unacceptable average level of 306 days. It is also worth emphasizing the incomparable pace of the changes in both indicators, which, as noted above, should remain relative to each other in a rationally (and economically) justified correlation that, in the medium and a long term, results from settlement of the company's obligations, to a large extent, by materialization of the volume of receivables.

The variability of the sales profitability index presented in Figure 6 (Appendix) [W6] indicates a gradual increase in the sales losses incurred by bankrupting enterprises, which a year prior to the court adjudicated insolvency/bankruptcy was, on average, 17% of the total revenues generated from the sales (Figure 6, Table 2). The average value of this [...] is negative in the entire four-year period preceding the bankruptcy of the surveyed enterprises. This indicator, as a stimulant, should, in entities of good economic and financial standing, at least remain (analyzed horizontally, i.e. over time) at a comparable or (preferably) a higher level. It can only be accepted as a negative value at the initial assessment of the startups' activity, where the first phase of activity, which is related to investment and the need to incur unpaid fixed costs at this stage, at insufficient market penetration (i.e. with generated revenues that are too low), is below the break-even point (BEP).

The last of the indicators analyzed (also a stimulant) can be used to assess effectiveness of capital involvement, from the perspective of the generated sales revenues [W7]. The chain index of the rate of change of the average level of this indicator (Table 2) shows an almost linear course. This is shown in Figure 7 (Appendix). Analysis of this [Appendix] leads to the conclusion that a year prior to bankruptcy of enterprises, the average ratio of the revenues generated to the balance sheet total drops to 168%. The profit-margin level achieved on the sales of these enterprises, shown directly by this indicator, is, however, far insufficient to cover the total fixed costs, not to mention the

variable costs of these entities, which (as indicated above) generated losses on the sales in all four years preceding bankruptcy (W6, Table 2).

## Discussion and conclusions

Analysis of the above indicators provides more interesting insights. It is understandable that, in the group of several thousand surveyed enterprises, the variation in the value of financial indicators can be significant. In fact, the coefficients of variation describing the intensity of their value volatility are, in many cases, close to and even exceed 100%. It is surprising that in each of the years analyzed, and for each indicator examined, volatility drops sharply in the  $t_{-3}$  period. If we assume the standard deviation of the [W1] index from the period  $t_{-4}$  to be 100%, then in the period  $t_{-3}$  it is only 46.1%, and for [W2] it is 81.8%, [W3] = 37.6%, [W4] = 38.2%, [W5] = 47.5%, [W6] = 49.2%, and [W7] = 80.9%. It is difficult to determine the reasons for this trend in a particular situation in a given calendar year, because seven consecutive years were observed. A deeper analysis of this trend shows that this may be due to a fundamental change in the distribution of indicators, which occurs in the  $t_{-3}$  period. Distribution of the [W6] indicator for enterprises that went bankrupt in 2012 (Figure 8 in the appendix) is a typical example. In the  $t_{-3}$  period, there are no indicator values greater than 5, while in  $t_{-4}$  they were even higher than 9. At the same time, the number of the indicators of the lowest values decreases by half. The average values (the median in the period  $t_{-4} = 1.97$ ,  $t_{-3} = 1.77$ ) and the skewness (skewness coefficient of  $t_{-4} = 3.09$ ,  $t_{-3} = 0.66$ ) decrease. In general, the distribution concentration (concentration coefficient for  $t_{-4} = 21.4$ ;  $t_{-3} = 2.75$ ) also increases. Changes are also visible in the level of standard deviation. Assuming standard deviation of 100% in the  $t_{-4}$  period, the decline is as much as 28.6%. In subsequent years, i.e. in  $t_{-2}$  and  $t_{-1}$ , changes are also visible, but the scale of these changes is incomparably smaller.

The above regularities are common to all indicators. They differ only in the size of these changes, but not in their nature. This observation raises many interesting questions. If forecasting models usually use the values of indicators from the  $t_{-1}$  period, which is justified by the fact that these data are most up-to-date, then at the market level the main symptoms of the threat are visible for the  $t_{-3}$  period. It seems that the above research results indicate a new path in building bankruptcy prediction models. Classic discriminatory bankruptcy forecasting models take into account only the level of values of selected indicators in their construction. Starting with Altman, subsequent models differ only in the indicators they take into account. They do not take into account the variability of the values of these indicators.

The study shows that by taking into account in the bankruptcy forecasting process not only the values of indicators from the  $t_{-1}$  period, but also the level of their changes in the period from  $t_{-4}$  to  $t_{-1}$ , it

is possible to improve the quality of the forecasts. This would mean the construction of new models, with a different structure and dynamic character. This constitutes an important contribution and encouragement for further research and construction of new predictive models.

The appendix is available in the online version of the journal.

## References

- Act of 28 February 2003, Bankruptcy Act, Journal of Laws, 2003, 60(535). <https://isap.sejm.gov.pl/isap.nsf/download.xsp/WDU20030600535/T/D20030535L.pdf>
- Act of 29 September 1994, Accounting Act, Journal of Laws, 1994, 121(591). <https://isap.sejm.gov.pl/isap.nsf/download.xsp/WDU19941210591/O/D19940591.pdf>
- Altman, E. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *Journal of Finance*, 23(4), 589–609. <https://doi.org/10.1111/j.1540-6261.1968.tb00843.x>
- Antonowicz, P. (2009). *Upadłości przedsiębiorstw w Polsce w 2007 r. oraz w I połowie 2008 r.* Assembly.
- Antonowicz, P. (2011a). Kształtowanie wartości brzegowych wskaźnika płynności finansowej I stopnia w przedsiębiorstwach w okresie trzech lat przed ogłoszeniem upadłości. *Zeszyty Naukowe Uniwersytetu Szczecińskiego*, 637. *Ekonomiczne Problemy Usług*, 62, 255–263.
- Antonowicz, P. (2011b). Długość cyklu inkasa należności i rotacji zapasów w przedsiębiorstwach na trzy lata przed sądowym ogłoszeniem upadłości. *Problemy Zarządzania*, 9(1), 53–71.
- Antonowicz, P. (2013). Zatory płatnicze i problemy z utrzymaniem płynności finansowej jako determinanty upadłości przedsiębiorstw branży budowlanej. In E. Mączyńska (Ed.), *Bankructwa przedsiębiorstw. Wybrane aspekty ekonomiczne i prawne* (pp. 95–111). Szkoła Główna Handlowa w Warszawie.
- Antonowicz, P. (2014). The analysis of ranges of variability of selected ratios from a group of assets productivity ratios three years before the declaration of bankruptcy by companies in Poland. *BEH – Business and Economic Horizons*, 10(3), 202–213. [https://wzr.ug.edu.pl/kep/upload/files/Antonowicz\\_BEH.pdf](https://wzr.ug.edu.pl/kep/upload/files/Antonowicz_BEH.pdf) (ug.edu.pl)
- Antonowicz, P. (2015a). *Bankructwa i upadłości przedsiębiorstw. Teoria – praktyka gospodarcza – studia regionalne*. Wydawnictwo Uniwersytetu Gdańskiego.
- Antonowicz, P. (2015b). *Procesy upadłościowe przedsiębiorstw w Polsce w 2014 r. – 5-letni raport z badań*. Konferencja Przedsiębiorstw Finansowych w Polsce – Związek Pracodawców.
- Bednarski, L. (2007). *Analiza finansowa w przedsiębiorstwie*. PWE.
- Beerman, K. (1976). *Prognosemöglichkeiten von Kapitalverlusten mit Hilfe von Jahresabschlüssen* [Forecasting the risk of bankruptcy based on annual financial reports]. IDW Verlag.
- Jacobs, O. H., & Oestreicher, A. (1994). *EDV-gestützte Jahresabschlussanalyse als Planungs- und Entscheidungsrechnung* [Computer-supported annual financial statement analysis]. Vahlen.
- Korol, T. (2010). *Systemy ostrzegania przedsiębiorstw przed ryzykiem upadłości*. Oficyna Wolters Kluwer Business.
- Krajewski, M. (2009). Zakres oceny i instrumentarium badania płynności finansowej. In W. Skoczylas (Ed.), *Analiza sprawozdawczości finansowej przedsiębiorstwa* (pp. 225–239). Stowarzyszenie Księgowych w Polsce.
- Legault, J. (1987). CA-Score. A warning system for small business failures. *Bilans*, 6.
- Maciejczak, M. (2008). Ocena Indeksów Wczesnego Ostrzegania na przykładzie Testu Szybkiego i Indeksu Zh. Czy wyniki zależą od zastosowanej metody? *Zeszyty Naukowe SGGW – Ekonomika i Organizacja Gospodarki Żywnościowej*, 64. <http://www.maciejczak.pl/download/znsngw2008.pdf>
- Mączyńska, E. (2004). Systemy wczesnego ostrzegania. *Biznes a ryzyko. Nowe Życie Gospodarcze*, 12, 4–9.
- Majeed, S., Makki, M. A., Saleem S., & Aziz, T. (2013). The relationship of cash conversion cycle and profitability of firms: An empirical investigation of Pakistani firms. *Journal of Emerging Issues in Economics, Finance and Banking (JEIEFB)*, 1(1), 35–51.
- Michalski, G. (2008). *Ocena finansowa kontrahenta na podstawie sprawozdań finansowych*. Wyd. ODDK.
- Murugesu, T. (2013). Effect of cash conversion cycle on profitability: Listed plantation companies in Sri Lanka. *Research Journal of Finance and Accounting*, 4(18), 132–137.
- Nehrebecka, N., & Dzik, A. M. (2012). Konstrukcja miernika szans na bankructwo firmy. *Materiały i Studia*, 280. Narodowy Bank Polski. <https://nbp.pl/wp-content/uploads/2022/10/ms280.pdf> (nbp.pl)
- Richards, V. D., & Laughlin, E. J. (1980). A cash conversion cycle approach to liquidity analysis. *Financial Management*, 9(1), 32–38. <https://doi.org/10.2307/3665310>
- Rogowski, W. K. (1999). Możliwości wczesnego rozpoznawania symptomów zagrożenia zdolności płatniczej przedsiębiorstwa. *Bank i Kredyt*, 6, 56–72. Wyd. Narodowego Banku Polskiego.
- Sierpińska, M., & Jachna, T. (2004). *Ocena przedsiębiorstwa według standardów światowych*. Wydawnictwo Naukowe PWN.
- Skoczylas, W. (2009). *Instrumenty oceny rentowności przedsiębiorstw*. In W. Skoczylas (Ed.), *Analiza sprawozdawczości finansowej przedsiębiorstwa* (pp. 200–205). Stowarzyszenie Księgowych w Polsce.
- Weinrich, G. (1978). *Kreditwürdigkeitserognosen. Steuerung des Kreditgeschäftes durch Risikoklassen* [Forecast of economic and financial (credit) standing – credit risk classification]. Gabler Verlag Wiesbaden. <https://doi.org/10.1007/978-3-322-88000-0>
- Zaleska, M. (2012). *Ocena ekonomiczno-finansowa przedsiębiorstwa przez analityka bankowego*. Szkoła Główna Handlowa w Warszawie.

**Paweł Antonowicz** is an Associate Professor at the Faculty of Management (University of Gdańsk, Poland), performing functions: (1) Deputy Dean for Research and Part-time studies of the Management Faculty, (2) Chairman of the Council of the Discipline of Sciences in Management and Quality; (3) Head of the Department of Business Economics. The main part of his scientific research uses selected indicators of early warning bankruptcy systems in order to evaluate enterprises' potential to continue business activity. In the past his research related also to the evaluation of the predictive ability of over than 50 predicting models of early bankruptcy warnings, which were mainly based on the discriminant analysis.

**Kamila Migdał-Najman** is an Associate Professor at the Faculty of Management (University of Gdańsk, Poland), Member of the Polish Statistical Society, Member of the International Federation of Classification Societies.

**Krzysztof Najman** is an Associate Professor at the Faculty of Management (University of Gdańsk, Poland), performing functions: (1) Deputy Dean for Student Affairs and Education, (2) Member of the Main Council of the Polish Statistical Society, (3) Member of The Financial Committee of The International Federation of Classification Societies, (4) Member of the Scientific Statistical Council of the President of the Central Statistical Office.

## WE RECOMMEND



### 23rd Management International Conference (MIC 2024) „Next Generation Challenges: Innovation, Regeneration and Inclusion“, June 5–8, 2024, Trento, Italy

Innovation, regeneration, and inclusion are central pillars of the future agenda for strong societies and economies, as they are key to overcoming challenges and driving sustainable growth in a rapidly changing world. It is recognised by researchers and policy makers, as well as by individuals, that it is their responsibility to improve the quality of life while preserving the environment for future generations. Economies and societies must therefore plan, act and create a future that leaves room for future generations.

The Next Generation EU instrument, an ambitious recovery plan launched by the European Union, recognises the critical role of the four pillars embedded in green and digital foundations in shaping the future. As we navigate through an ever evolving and complex world, it is crucial to address the challenges that lie ahead. Scientists and researchers have a responsibility to explore, investigate and make the world a better place.

The MIC 2024 conference aims to explore the next generation challenges facing different industries, sectors and fields, with a particular focus on fostering innovation, building resilience, promoting regeneration and ensuring inclusivity – it is open to all contributions that address the next generation challenges. The conference also aims to bring together academics, professionals, and experts from management, economics, human resource management, organizational studies, finances, accounting, and other related fields, while providing a unique platform for knowledge exchange and collaboration.

As always, MIC 2024 welcomes researchers to join the conference community, share their expertise and experience, provide new empirical evidence and engage in theoretical discussions.

Submit your abstract by March 29, 2024

„E-mentor“ is one of the MIC 2024 supporting journals.

More information at: <https://www.mic.fm-kp.si/>



*Albena  
Vutsova*



*Martina  
Arabadzhieva*



*Todor  
Yalamov*

# Social responsibility at a university – students' perspectives

## Abstract

This paper explores social responsibility training as part of university educational programmes. The authors compare French and Bulgarian students' perceptions of various elements of social responsibility and how social responsibility is approached in universities' curricula. Bulgarian students see social responsibility more often in terms of volunteer work, charitable activities and career opportunities, while French students associate it with environmental aspects. The only statistically significant gender difference in Bulgaria emerged in linking improving working conditions with social responsibility. French students placed stronger emphasis on business and the possible practical applications of social responsibility training offered by universities.

**Keywords:** business, students, sustainability, university, social responsibility, teaching methods

---

## Introduction

Higher education institutions of modern societies must address multiple social and economic challenges. Social responsibility therefore must become a necessary component of each university's mission and strategy. University social responsibility (USR) is a relatively recent idea (Kouatli, 2018; Larran Jorge et al., 2011), and the subject of growing academic interest (Larran Jorge & Andrade Pena, 2017; Meseguer-Sanchez et al., 2020).

Traditionally, social responsibility is associated with corporate organisations (Berber et al. 2014; Fontaine, 2013; Nardo et al., 2021), but plays an increasingly important role in public institutions (Bokhari, 2017; Kouatli, 2018; Ogarca & Puiu, 2017). Bokhari (2017) argues that Corporate Social Responsibility (CSR) is associated more often with non-profit organisations and higher education institutions, as they seek to tackle various challenges through different reforms (Vasilescu et al., 2010). The need for higher education institutions to address in a better way the topics of ethics and social responsibility was identified several decades ago (Sims & Sims, 1991). Universities have only recently begun to adopt social responsibility and at a slower pace compared to business organisations (Hernandez et al., 2020). Universities apply social responsibility to gain a competitive advantage and demonstrate their commitments beyond teaching. They address targeted EU policies on research within the European Higher Education Area while paying attention to social responsibility. As a follow up, many universities have adopted social responsibility initiatives in their strategies.

Universities should make it part of their mission to support finding solutions to societal problems and contribute to social well-being and better quality of life.

From this perspective, social responsibility should be a priority in higher education institutions' vision and strategy, building on academic rigour and excellence. The policies in the respective universities have evolved over the years.

This paper studies social responsibility training as a tool to support the formation of socially responsible citizens and as an element of university activities. The main premise of the analysis is that students perceive social responsibility as an important part of social development and consider learning about this field as advantageous for their future. These propositions are related to previous research, as authors look at the influence similar education has on students' employability (Graham, 2012; Syper-

---

Albena Vutsova, Sofia University "St. Kliment Ohridski", Bulgaria,  <https://orcid.org/0000-0001-8223-6727>

Martina Arabadzhieva, Sofia University "St. Kliment Ohridski", Bulgaria,  <https://orcid.org/0000-0001-5809-9443>

Todor Yalamov, Sofia University "St. Kliment Ohridski", Bulgaria,  <https://orcid.org/0000-0001-9900-7285>

Jędrzejak et al., 2022). Tormo-Carbo et al. (2019) claim, as far as teaching approaches are concerned, that the students' point of view is rarely analysed and further research is needed. Coelho and Menezes (2021) point out that understanding the students' perspective on USR policies and education should be better explored. Vazquez et al. (2015) call attention to changes in a curriculum through analysing the students' opinion. According to Ayala-Rodriguez et al. (2019), a new understanding of the university's role is emerging which reflects academia's contribution to solving social, political and environmental problems, and defining new pathways for cooperation between the private and the public sector. Responsible universities also cooperate with the society-at-large, for example, with local and disadvantaged communities as well as with self-organized citizen groups.

This paper examines student perspectives on social responsibility in curricula, comparing the views of French and Bulgarian students. This comparison offers insights into Old and New EU Member states and Eastern Europe's understudied focus on University Social Responsibility (USR). Despite differing economic stages—France being a strong innovator and Bulgaria an emerging one—the two countries share cultural traits such as a long-term educational focus.

Our research poses three questions: What are students' perceptions of social responsibility training at a university and what do they believe are the most effective methods to teach the subject, and what are the factors driving teaching on social responsibility in academia, including teaching the importance of USR policies? We conducted a mixed online and paper-and-pencil survey among students in economics, management, and related programmes to get insights from students in Bulgaria and France.

---

## Theoretical background

---

### University social responsibility as a basis of social responsibility training

The relationship between CSR and higher education was studied even before the term USR was first introduced by Matten and Moon (2004). CSR was introduced to the curriculum in many business schools. Subsequently, Barber and Venkatachalam (2013), Christensen et al. (2007), Hesselbarth and Schaltegger (2014) contributed to the establishment of this new field. CSR has a long tradition within the Japanese responsible management school of thought (Kuriyama, 2020) and the world's humanities universities. These educational institutions prepare their students for corporate recruitment questions like "How would you like to contribute to society?" and "How do you see our company assisting you?" instead of "Why you are the best candidate for us?"

Vasilescu et al. (2010) argue that a student represents a unique type of stakeholder for the purposes of USR. Ayala-Rodriguez et al. (2016) also recognize students as key players in USR (Chen et al., 2015).

Students represent the future leaders and competent professionals, and universities educate them regarding social responsibility (Ayala-Rodriguez et al., 2016; Hernandez et al., 2020) and civics. Hudler et al. (2021) believe that universities should empower student activists to engage with various issues related to social injustice, marginalisation, and oppression as well as campus sustainability. However, if no dedicated programmes for student empowerment are in place, the university rhetoric has little or no value. Universities are considered laboratories for democracy, where students develop civic skills in addition to acquiring intelligence and erudition.

Jongbloed et al. (2008) argue that a socially responsible university supports equal opportunities, provides education targeted towards social needs, enhances the process of lifelong learning, and helps communities address major societal problems.

From the educational perspective, Idowu and Sitenikov (2020) outline several options: engaging young people with the concept of social responsibility; providing specialized training on the subject; developing practical skills for social responsibility, and investing in both fundamental and applied research on the topic. Audebrand (2017) claims that the responsibility for teaching social responsibility falls in particular upon institutions with an economic profile; they are expected to include social responsibility in their strategy as sustainability becomes an increasingly important part of strategic policy.

Bokhari (2017) provides a comprehensive analysis of the universities' area of social responsibility. It combines two types of measures: the first is knowledge transformation (acquisition/cognition and diffusion/education) and the second is social institutionalization (organization/socialization). Bokhari investigates the different responsibilities a higher education institution has – leading as an organization by example by maintaining socially responsible campuses, conducting valuable research in the ESG (Environmental, Social, Governance) domain, and providing evidence-based education, policy advice and business consultancy. Through responsible education, a university encourages social responsibility awareness and engages students in activities related to a socially responsible campus. Thus, universities drive and shape sustainability.

Ali et al. (2021) provide USR typology of nine branches: social, sub-social, cognitive, organization, altruistic, economic, ethic, environment and education, which will be the basis of our empirical research. Over recent decades, there has been an expectation of universities that they go beyond and expand their role in community life, not only through addressing societal problems, but also by aligning their activities with USR (Ali et al., 2021). Higher education institutions play a unique part in maintaining sustainability in terms of knowledge creation, knowledge transfer, and teaching (Esfijani & Chang, 2012). Ali et al. (2021) share this view of universities as guarantors of sustainability, as these institutions are to breed future leaders.

# Social responsibility at a university – students' perspectives

---

Soderbaum (2009) recognises that universities influence young people and educate them on sustainability and social responsibility, and hence universities are an important part of engaging people with these ideas. The roles of students are also perceived differently and broadly, looking at them as representatives of society who cause an institution to transform (Ayala-Rodriguez & Hernandez, 2016). Another aspect of universities' ethical and moral values with respect to social responsibility is related to environment, current social situation, and consequences for the well-being of society. Moubed and Nadizadeh (2022) claim that communication and cooperation between higher education institutions and local and global communities could support the pursuit of a more sustainable society.

The post-pandemic situation has compelled universities to rethink their strategies, especially in terms of social responsibility. The authors ask what the new role of social responsibility training is and to what extent it addresses student expectations.

## **Students' perception of social responsibility teaching**

How students perceive ethics as an aspect of social responsibility in education has been researched for a while. Rutherford et al. (2012) observe that ethics, sustainability, and CSR have been included in a way in management disciplines in business schools. Adkins and Radtke (2004) concentrate particularly on this topic, and confirm that students found training in ethics useful and valuable. Hurtt and Thomas (2008) also realised the necessity of business ethics education. They found that preferred training methods included mixed approaches such as lectures, case studies, moral dilemmas. Other authors, such as Graham (2012), put emphasis on the aims and effectiveness of such training and analyse the students' opinion on the importance of the subject as well as the preferred teaching methods. The author came to several relevant conclusions – first, understanding ethics should be part of the employability skills of students. In addition, they perceive ethics education as important for their future careers, and as far as teaching is concerned, case studies are suggested as a practical and effective way to learn about the subject. Tormo-Carbo et al. (2016) confirm the need to include business ethics in higher education curricula to exert a positive influence on work practices of future businesspeople as there should be a balance between social and business goals. The results from their study also support the importance of training in ethics, specifically with the aim to train students to be more professional and comment that education should be adapted for this purpose. Medeiros et al. (2017) reveals that active participation in class improves the effectiveness of business ethics courses, such as presentations, discussions and especially workshops.

When students engage in service-learning projects, they not only gain skills that are valuable in the job market (Rutti et al., 2016) but also gain a better understanding and development of CSR (Fonseca et

al., 2020; Peric & Delic, 2016). Albareda Tiana and Alferes Villarreal (2016) affirm that tackling real-life problems through projects is an effective learning approach. Tormo-Carbo et al. (2019) suggest that further research is needed in course design and methodology. Additionally, they note that more studies should focus on the types of courses students prefer and their attitudes toward the subject, especially as the emphasis is placed on practical activities like workshops and internships (Syper-Jędrzejak et al., 2022). The learning process itself should also be considered, beyond just the specific subject matter.

Effective continual training in social responsibility, beyond just business ethics, should be integrated into corporate strategies by future employers of current students (Syper-Jędrzejak et al., 2022). Research confirms that there are current opportunities for greater engagement in social responsibility, especially in business-focused universities. Moreover, CSR education enhances students' professional development (Palacios Garay et al., 2021) and prepares them for sustainable careers by teaching them to navigate daily challenges responsibly. Gitsam (2011) found that CEOs increasingly seek graduates educated in CSR across various industries and organizations.

While the demand for responsible management education is increasing (*The Principles for Responsible Management Education*, 2018), countries in Central and Eastern Europe are still lagging other EU member states in adopting such practices (Berniak-Woźny, 2018). Gorski et al. (2017) research sustainability and CSR education in business schools focusing on the Balkan region, and point out not only that curricula should be updated, but that novel teaching methods should be implemented. Berniak-Woźny (2018) study the students' perceptions of CSR in business schools in Poland. The students lacked confidence in their knowledge of the subject, and only about half gained their understanding from university courses, expressing dissatisfaction despite a high level of interest. Most participants believed the subject should be elective and favoured lectures and discussions over case studies and group projects. Schulz et al. (2018) confirm that elements of different teaching methods such as lectures, projects, case studies, problem-solving, could be integrated for a multilevel learning approach, and even suggest playful modelling to engage various types of students with backgrounds in different disciplines.

---

## **Bulgaria and France**

---

### **Methods**

This paper investigates students' attitudes towards social responsibility and the related teaching methods at universities. When conducting the first comparative exploration in this field, we had to limit the scope of the empirical study by choosing departments and programmes in economics and business administration. For Bulgaria, we selected ten out of the existing

52 universities with a proper geographical mix (covering universities located across the country, which were Sofia, Plovdiv, Varna, Veliko Tarnovo, Svishtov, Shumen, Blagoevgrad and Botevgrad) and types of universities (public and private, wide-profile and niche (students predominately studying economics, finance, management)).

In France we were not able to obtain sufficient turnout, so we focused on the Université de Versailles Saint-Quentin-en-Yvelines, which is part of Université Paris-Saclay<sup>1</sup>. The university aims to be a leader in the field of sustainability studies, and has signed a Commitment for Sustainable practices in higher education institutions. During the last ten years, the institution has made numerous commitments to the achievement of sustainability goals at local, national, and international level, and considers itself a pioneer in this field. Apart from various courses addressing the topic, the French university offers an MA programme in Sustainable Development. In France, the social responsibility-related courses are part of the compulsory programme and in Bulgaria they are predominantly elective.

The study was conducted over a period of three months during the spring of 2022. It was carried in accordance with GDPR policies and personal data protection, also respecting ethics; no students under eighteen years old were included, and other types of discriminatory practices were avoided. 126 students from Bulgaria and 99 from France provided responses. Most of the respondents (85.5%) are between the age of 20 and 25, 7.2% – between 26 and 30, and 5.8% preferred not to answer the question. The sample mostly comprised women – 85.5%.

After devising the questions in English, they were translated into the respective national language (Bulgarian or French) for each country using back translation to check comparability and that all texts were identical in meaning; however, a few questions differed, and this is analysed below. The survey was conducted in the form of online questionnaires (via a dedicated website and by email) and was also available in paper-and-pencil version. Most replies were received digitally. The survey data were analysed using the SPSS.

The questions in the survey aim to determine the extent to which students handle this subject and analyse their perspective on social responsibility education.

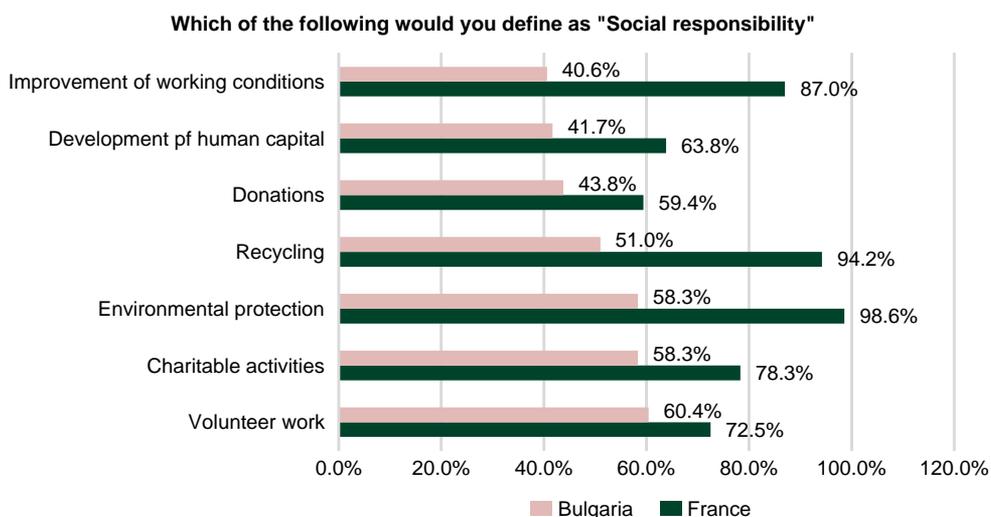
**The students' views about social responsibility and its place in higher education**

The starting point in the study among students was their personal familiarity with the meaning of the term “social responsibility” and the activities with which they associate it.

Unlike the Polish case (Berniak-Woźny, 2018) most students are confident in their understanding of social responsibility. Bulgarian students are familiar with its role in the three pillars of sustainability: economic growth, social well-being, and environmental protection. Many view it as a newer addition to the curriculum. French students have a deeper understanding of the various aspects of this term.

The groups differ in prioritizing the facets of this term in terms of Ali et al. (2021): Bulgarians focus on altruism, such as volunteer work and charity, while French students emphasize environmental respon-

**Figure 1**  
Definition of social responsibility according to the students



Source: authors' own work.

<sup>1</sup> The survey at the Université Paris-Saclay was conducted by prof. Gilles Rouet and prof. Stela Raytcheva.

## Social responsibility at a university – students’ perspectives

sibility. Bulgarian students do not consider social responsibility to be linked to improved working conditions, whereas for the French, donations are least significant.

We tested for differences in the Bulgarian group by gender and level of education, and the ANOVA tests did not show any significant difference for a 95% confidence interval. For a 90% interval, only improving the working conditions would have been chosen statistically more often by women than men (level of significance 0.079). No other differences were observed.

Student responses across Bulgarian universities showed no statistical differences, except for Sofia University students, who more often linked environmental protection to social responsibility (significance level 0.082). This is attributed to initiatives by the Faculty of Economics and Business Administration, such as their Sustainability Report and Code of Ethics, which emphasize CSR. Sofia University aims to cultivate students as responsible, sustainability-focused

citizens, a goal reflected in diverse courses across undergraduate and graduate programmes.

Students are aware of international trends in personnel training on social responsibility and its importance for sustainable business and economic development. French students consider studying social responsibility to be of greater value than their Bulgarian counterparts.

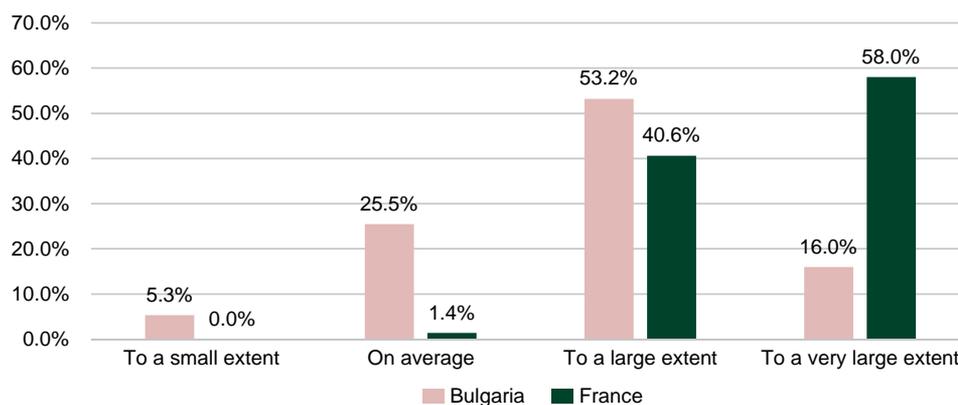
Over 80% of each study group rates social responsibility as “important”, highlighting its relevance across economic and public life. The study suggests that meeting rising social demands requires socially responsible and transparent management across society, business, and education. Students believe that the best way to incorporate social responsibility into education is by involving businesses in university programmes.

Students consider the “academia-business” relationship to be highly important, suggesting that effective training methods could include practical experiences and partnerships with businesses, such

**Figure 2**

SR in HE according to the students in the survey

To what extent do you think the subject of "Social Responsibility" should be studied in higher education?



Source: authors' own work.

**Table 1**

Opinions on how SR should be included in higher education institutions, Bulgaria

In what way do you think the subject of Social Responsibility could be most effectively incorporated into higher education?	
Student internships in business organizations/internships	61.5%
Practical classes (exercises) on real business cases	57.3%
Conferences and seminars	46.9%
Research practices	42.7%
Business representatives visiting as speakers	41.7%
Implementation of specific projects in partnership with business	40.6%
Lecture course	36.5%
Seminar classes	32.3%
Creating a course in collaboration with the business	30.2%

Note. \*Students in Bulgaria are asked to choose from all listed options for effective inclusion of “Social Responsibility” in higher education.

Source: authors' own work.

**Table 2**

*Opinions on how SR should be included in higher education institutions, France*

In what way do you think the subject of Social Responsibility could be most effectively incorporated into higher education?	
Student internships in business organizations/internships	78.3%
Practical classes (exercises) on real business cases	81.2%
Conferences and seminars	62.3%
Research practices	43.5%
Implementation of specific projects in partnership with business	95.7%
Lecture course	11.6%
Seminar classes	84.1%
Student projects	81.2%

*Note.* \*Students in France were asked to rate responses on a scale of 1 (Strongly Disagree) to 5 (Strongly Agree). The percentages aggregate the “Somewhat Agree” and “Strongly Agree” answers.

*Source:* authors’ own work.

as internships, real case studies, and guest lectures. The primary distinction between French and Bulgarian students is that the former view independent or collaborative project-based study as a significantly more effective learning tool.

At the same time, there are significant differences between the students from FEBA and other Bulgarian universities in terms of how they see the most successful implementation of USR. FEBA students would significantly more often associate guest lectures from business (level of significance 0.046), real business

cases discussed in class (level of significance 0.073) and working on real-life business projects in partnership with business (level of significance 0.039) with successful teaching methods. The major reason for this is the FEBA policy of research-business alliance.

Students in both countries feel that social responsibility training would make them more competitive in the job market and consider it important for future employers to have a CSR policy. This aspect is more important to French students than to their Bulgarian counterparts.

**Table 3**

*Best way to teach social responsibility*

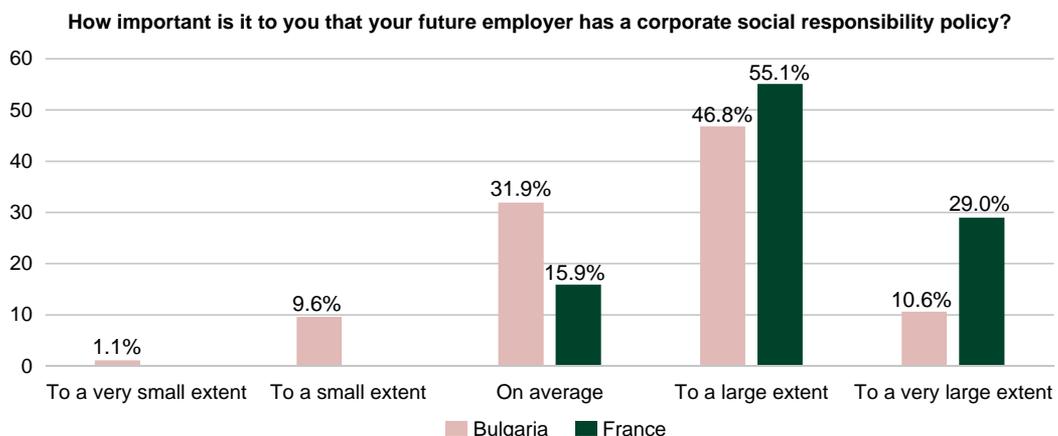
Best way to teach social responsibility	Non-FEBA students	FEBA students
Guest lectures from business**	39%	75%
Real business cases discussed*	55%	88%
Working on real-life business projects**	38%	75%

*Note.* \* significance < 0.05; \*\* significance < 0.10

*Source:* authors’ own work.

**Figure 3**

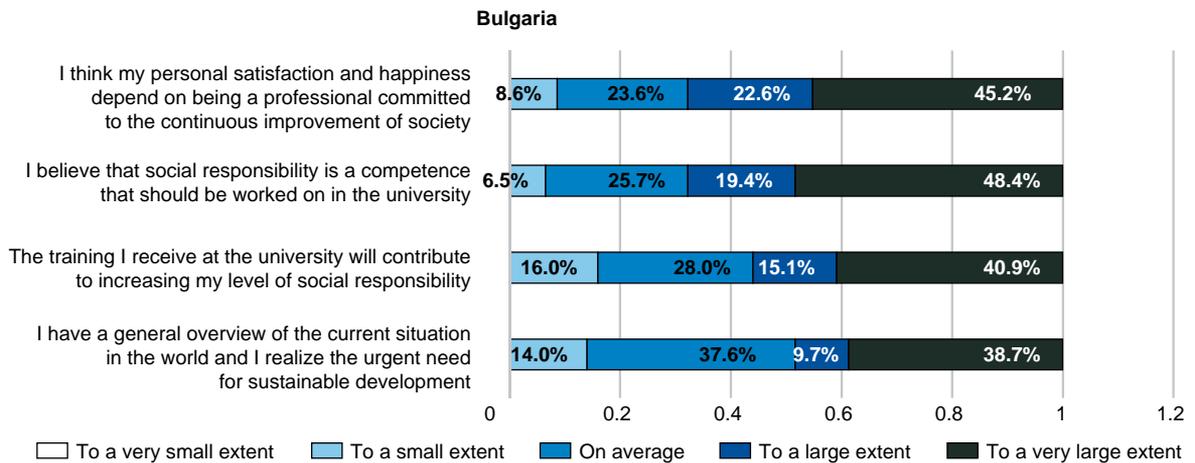
*Social responsibility and future employment in students’ views*



*Source:* authors’ own work.

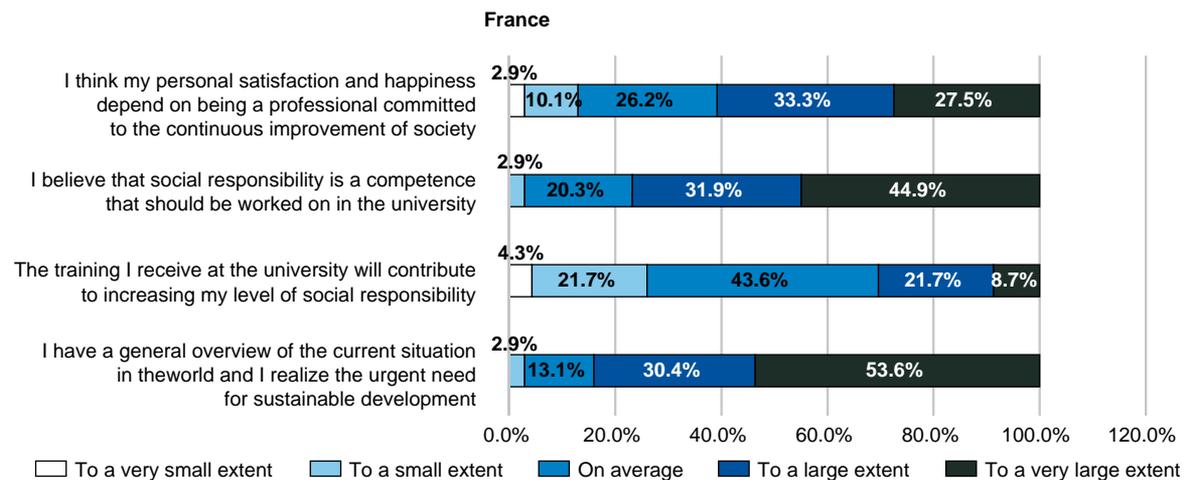
# Social responsibility at a university – students’ perspectives

**Figure 4**  
Students’ views on social responsibility, Bulgaria



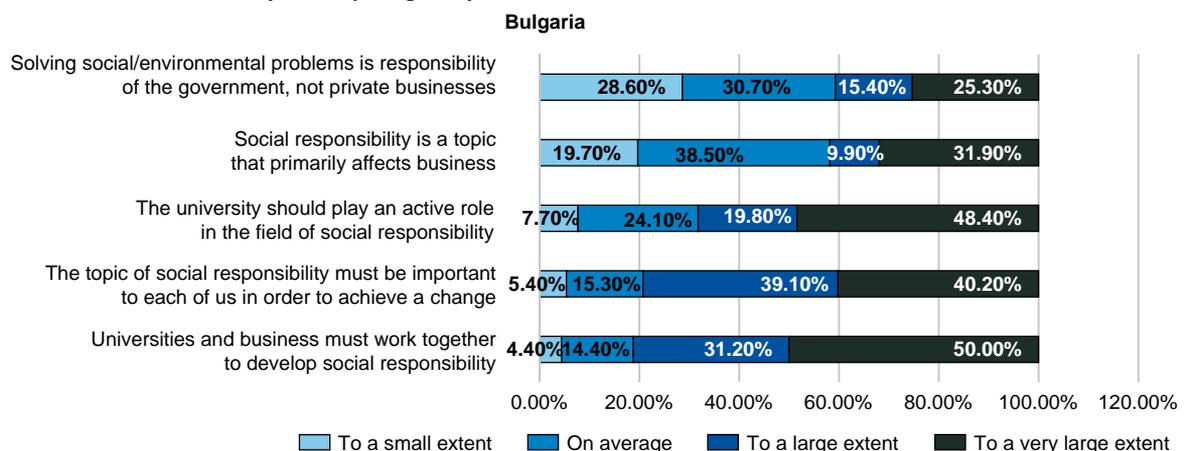
Source: authors’ own work.

**Figure 5**  
Students’ views on social responsibility, France



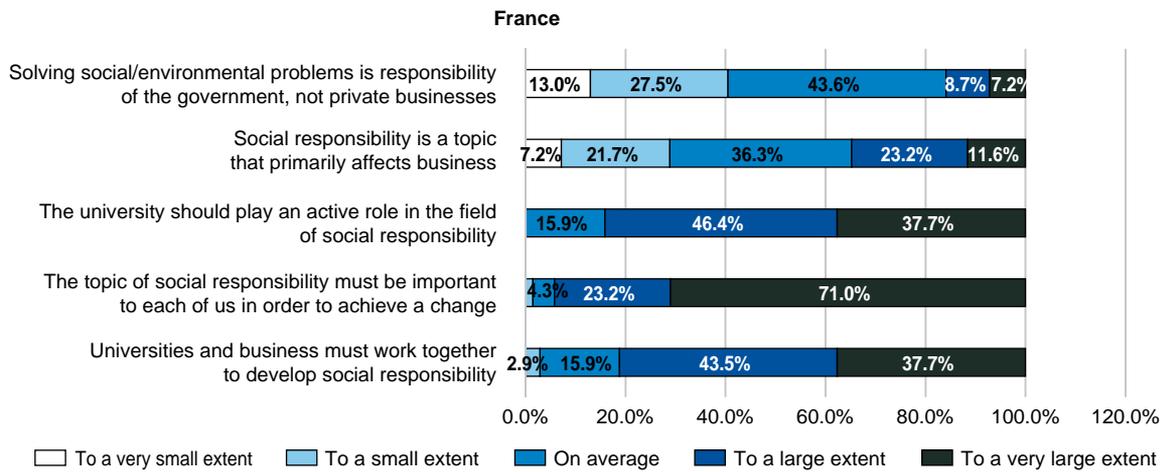
Source: authors’ own work.

**Figure 6**  
Students’ views on social responsibility, Bulgaria, part 2



Source: authors’ own work.

**Figure 7**  
Students' views on social responsibility, France, part 2



Source: authors' own work.

The data indicates that students closely link their personal satisfaction to their future roles as professionals committed to ongoing societal improvement. The majority of respondents feel that universities and businesses should collaborate to foster social responsibility. Respondents also agree that meaningful change can only occur if social responsibility matters to each individual.

### Discussion

Several findings stand out from the analysis of the understanding and the attitudes towards social responsibility of students in Bulgaria and France.

The study shows that students in Bulgaria and France view social responsibility as a competence that should be developed at university. The respondents declare social responsibility to be an "important" topic and to exceed 80% for each measured indicator. Bulgarian students do not directly link environmental protection with social responsibility as much as the French, but this might be because in Bulgaria the environmental agenda has been promoted mainly by volunteers and charitable activities of civil society organizations.

Probably as everywhere, all students believe that including businesses in various formats in the educational process is the best way to teach social responsibility, but it is likely that we would have received similar responses for teaching every business-related course. Although French and Bulgarian respondents answered questions in a different way – the former rating the options and the latter listing the ones they considered relevant, the tendencies were similar and aimed at business active participation. French students traditionally have access to a programme based on a long-lasting partnership with businesses, where internships form a substantial part of the educational process.

This paper finds that students in both countries generally view education in social responsibility as

important and believe that businesses should also participate through business cases and guest lectures. French students place significant emphasis on independent or collaborative project-based studies as effective learning tools, while Bulgarian students do not favour this approach.

Students hold strong expectations for businesses to act in a socially responsible manner. They believe that CSR should be integrated into management processes. Students also see the significance of USR for societal development. This includes attitudes toward sustainability, well-being, ecology, and improved working conditions, with 87% approval.

Palacios Garay et al. (2016) and Rutti et al. (2016) indicate that social responsibility education benefits students both professionally and as responsible consumers and citizens. The current study confirms that this training improves their career prospects and competitiveness while equipping them with sustainability knowledge in line with national policies. Albareda Tiana and Alferez Villarreal (2016) confirmed that practical learning has a positive effect on areas such as lifestyle and skill development.

Students in both countries highly rate internships (61.5%/78.3%) and real business case exercises (57.3%/81.2%) as preferred teaching methods for skill-building. With new demands like non-financial reporting for large companies and environmental risk assessments for bank loans, the corporate world expects universities to offer courses on social responsibility.

Studying a student's perception of USR in Spain, Vazquez et al. (2015) found that early engagement with USR is significant for their professional initiatives. A similar perception can be seen in our study as well.

There are minor differences between the two countries, with French students emphasizing the practical applications of university-offered social responsibility training more strongly. This aligns with France's

# Social responsibility at a university – students' perspectives

standing as a strong innovator, credited partly to its solid business-academia alliance, whereas Bulgaria remains a modest innovator. Coelho and Menezes (2021) note that balancing theory and practice encourages students to reconsider their societal role, with projects serving as an effective way to apply knowledge.

Fonseca et al. (2020) also support the view that students should participate in service actions to develop their attitude towards social responsibility. They recommend having subjects regarding the topic and exercises to raise awareness too. Many universities show that including subjects related to social responsibility raises the awareness of the students and encourages a culture of sustainability (Peric & Delic, 2016). The students consider participation in projects and exercises as the proper way not only to better their knowledge but to raise their awareness about social responsibility, while Bulgarian students stress this point more (75%/38%).

Based on the survey findings and conclusions, students in both countries view social responsibility as essential to their roles as citizens and future employees. This validates our initial assumption about the value they place on education in this field. They favour practical classes and business engagement through internships and collaborative projects, indicating a readiness to actively participate in social responsibility efforts. Universities should consider these student perspectives and expectations as they are key stakeholders.

## Conclusion

USR is a contribution to the UN Sustainable Development Goals and to the targeted policies in the context of ESG, and raising awareness of social responsibility is a key part of this. We have shown that students in Bulgaria and France are familiar with the subject and understand the value of social responsibility and the role of the university in integrating the topic into the curriculum. The study also confirmed that many students resume social responsibility measures as a factor for improvement of society and the increasing importance of ESG.

Students are influenced by social responsibility through their coursework, recognizing its importance for both their future careers and societal benefit. Universities should align their programmes with business needs by updating curricula and adding business-oriented tools. Before introducing new courses or master's programmes on social responsibility, a study should assess young people's expectations. Involving stakeholders like businesses in shaping this education can enhance its impact. Given the dynamic nature of social responsibility, courses must be frequently updated to reflect national or European contexts. At the same time, academic research should lead to new methodologies for better ESG reporting by business. Further research should explore students' perception of USR beyond its educational aspects.

## Acknowledgements

This paper benefits from a project funded by the Bulgarian Science Fund through Bilateral Scientific Cooperation Bulgaria – France – RILA Programme 2021, Organisational Social Responsibility Project - КП-06-РИЛА/1 from 15.12.2021.

## References

- Adkins, N., & Radtke, R. R. (2004). Students' and faculty members' perceptions of the importance of business ethics and accounting ethics education: Is there an expectations gap? *Journal of Business Ethics*, 51(3), 279–300. <https://doi.org/10.1023/B:BUSI.0000032700.07607.02>
- Albareda Tiana, S., & Alferéz Villarreal, A. (2016). A collaborative programme in sustainability and social responsibility. *International Journal of Sustainability in Higher Education*, 17(5), 719–736. <https://doi.org/10.1108/IJSHE-07-2016-0134>
- Ali, M., Mustapha, I., Osman, S., & Hassan, U. (2021). University social responsibility: A review of conceptual evolution and its thematic analysis. *Journal of Cleaner Production*, 286, 124931. <https://doi.org/10.1016/j.jclepro.2020.124931>
- Audebrand, L. K. (2017). Sustainability in strategic management education: The quest for new root metaphors. *Academy of Management Learning & Education*, 9(3). <https://doi.org/10.5465/amle.9.3.zqr413>
- Ayala-Rodriguez, N., & Hernandez, B. (2016). La Responsabilidad Social En Estudiantes de América Latina [Social Responsibility in College Students in Latin America]. *Revista de Investigación Científica En Psicología*, 13(1), 7–23.
- Ayala-Rodriguez, N., Barreto, I., Rozas Ossandon, G., Castro, A., & Moreno, S. (2019). Social transcultural representations about the concept of university social responsibility. *Studies in Higher Education*, 44(2), 245–259. <https://doi.org/10.1080/03075079.2017.1359248>
- Barber, N. A., & Venkatachalam, V. (2013). Integrating social responsibility into business school undergraduate education: A student perspective. *American Journal of Business Education*, 6(3), 385–396. <https://doi.org/10.19030/ajbe.v6i3.7819>
- Berber, N., Susnjarić, G. S., Slavic, A., & Baosic, M. (2014). Relationship between Corporate Social Responsibility and Human Resource Management – As new management concepts – in Central and Eastern Europe. *Engineering Economics*, 25(3). <https://doi.org/10.5755/j01.ee.25.3.4222>
- Berniak-Woźny, J. (2018). The role of business schools in CSR and responsible management education: The Polish students' perspective. *Critical Studies on Corporate Responsibility, Governance and Sustainability*, 12, 223–239. <https://doi.org/10.1108/S2043-905920180000012011>
- Bokhari, A. A. H. (2017). Universities' Social Responsibility (USR) and sustainable development: A conceptual framework. *International Journal of Economics and Management Studies*, 4(12), 8–16. <https://doi.org/10.14445/23939125/IJEMS-V4I12P102>
- Chen, S.-H., Nasongkhla, J., & Donaldson, J. A. (2015). University Social Responsibility (USR): Identifying an ethical foundation within higher education institutions. *Turkish Online Journal of Educational Technology*, 14(4), 165–172.
- Christensen, L. J., Peirce, E., Hartman, L. P., Hoffman, W. M., & Carrier, J. (2007). Ethics, CSR, and sustainability

education in the 'Financial Times' Top 50 Global Business Schools: Baseline Data and future research directions. *Journal of Business Ethics*, 73(4), 347–368. <https://doi.org/10.1007/s10551-006-9211-5>

Coelho, M., & Menezes, I. (2021). Universitas: How do students perceive university social responsibility in three European higher education institutions? *International Journal of Sustainability in Higher Education*, 23(4), 767–782.

Esfijani, A., & Chang, E. (2012). Metrics development for measuring virtual university social responsibility. *Proceedings of the 12th International Conference on Advanced Learning Technologies* (pp. 724–725). IEEE. <https://doi.org/10.1109/ICALT.2012.154>

Fonseca, I., Bernate, J., Betancourt, M., Barón, B., & Cobo, J. (2020). Developing social responsibility in university students. *Proceedings of the on Education Technology and Computers* (pp. 215–218). <https://doi.org/10.1145/3369255.3369275>

Fontaine, M. (2013). Corporate social responsibility and sustainability: The new bottom line. *International Journal of Business and Social Science*, 4(4), 10.

Foundation for the Global Compact. (2018). *The Principles for Responsible Management Education (PRME)*. <https://d30mzt1bxg5llt.cloudfront.net/public/uploads/PDFs/PRMEBrochure2018.pdf>

Gitsham, M. (2011). CEO perspectives: management education in a changing context. *Corporate Governance*, 11(4), 501–512. <https://doi.org/10.1108/1472070111159316>

Gorski, H., Fuciu, M., & Dumitrescu, L. (2017). Sustainability and corporate social responsibility (CSR): Essential topics for business education. *Balkan Region Conference on Engineering and Business Education*, 2(1), 413–421. <https://doi.org/10.1515/cplbu-2017-0054>

Graham, A. (2012). The teaching of ethics in undergraduate accounting programmes: The students' perspective. *Accounting Education*, 21(6), 599–613. <https://doi.org/10.1080/09639284.2012.725638>

Hernandez, A., Ripoll, R., Velazco, J., de, & Hernandez, I. (2020). University Social Responsibility in the Organizational Happiness Management. *Utopia y Praxis Latinoamericana*, 25(Extra 2), 427–440.

Hesselbarth, C., & Schaltegger, S. (2014). Educating change agents for sustainability – learnings from the first sustainability management master of business administration. *Journal of Cleaner Production*, 62, 24–36. <https://doi.org/10.1016/j.jclepro.2013.03.042>

Hudler, K., Dennis, L., DiNella, M., Ford, N., Mendez, J., & Long, J. (2021). Intersectional sustainability and student activism: A framework for achieving social sustainability on university campuses. *Education, Citizenship and Social Justice*, 16(1), 78–96. <https://doi.org/10.1177/174619791988686>

Hurt, R. K., & Thomas, C. W. (2008). Implementing a required ethics class for students in accounting: The Texas experience. *Issues in Accounting Education*, 23(1), 31–51. <https://doi.org/10.2308/iace.2008.23.1.31>

Idowu, S. O., & Sitnikov, C. (Eds.). (2020). *Essential issues in Corporate Social Responsibility. New insights and recent issues*. Springer.

Jongbloed, B., Enders, J., & Salerno, C. (2008). Higher education and its communities: Interconnections, interdependencies and a research agenda. *Higher Education*, 56(3), 303–324. <https://doi.org/10.1007/s10734-008-9128-2>

Kouatli, I. (2018). The contemporary definition of university social responsibility with quantifiable sustainability. *Social Responsibility Journal*, 15(7), 888–909. <https://doi.org/10.1108/SRJ-10-2017-0210>

Kuriyama, N. (2020). The Japanese perspective on responsible management. In O. Laasch, R. Suddaby, R. E. Freeman, & D. Jamali (Eds.), *Research handbook of responsible management* (pp. 318–331). Edward Elgar Publishing. <https://doi.org/10.4337/9781788971966.00029>

Larran Jorge, M., & Andrades Pena, F. J. (2017). Analysing the literature on university social responsibility: A review of selected higher education journals. *Higher Education Quarterly*, 71(4), 302–319. <https://doi.org/10.1111/hequ.12122>

Larran Jorge, M., Lopez Hernandez, A., & Marquez Moreno, C. (2011). *La comunidad universitaria andaluza ante la responsabilidad social: Un estudio de opinión* [A survey of attitudes towards social responsibility in Andalusian university milieu]. Foro de los Consejos Sociales de las Universidades Públicas de Andalucía.

Matten, D., & Moon, J. (2004). Corporate social responsibility. *Journal of Business Ethics*, 54(4), 323–337. <https://doi.org/10.1007/s10551-004-1822-0>

Medeiros, K. E., Watts, L. L., Mulhearn, T. J., Steele, L. M., Mumford, M. D., & Connelly, S. (2017). What is working, what is not, and what we need to know: A meta-analytic review of business ethics instruction. *Journal of Academic Ethics*, 15(3), 245–275. <https://doi.org/10.1007/s10805-017-9281-2>

Meseguer-Sanchez, V., Abad-Segura, E., Belmonte-Urena, L. J., & Molina-Moreno, V. (2020). Examining the research evolution on the socio-economic and environmental dimensions on university social responsibility. *International Journal of Environmental Research and Public Health*, 17(13), 4729. <https://doi.org/10.3390/ijerph17134729>

Moubed, M., & Nadizadeh, A. (2022). A review of criteria for effective university – society relationship based on university social responsibility models. *Science and Technology Policy Letters*, 12(1), 112–199.

Nardo, M. T., Codreanu, G. C., & Roberto, F. (2021). Universities' social responsibility through the lens of strategic planning: A content analysis. *Administrative Sciences*, 11(4), 139. <https://doi.org/10.3390/admsci11040139>

Ogarca, R. F., & Puiu, S. (2017). Corporate Social Responsibility in the Romanian Public Sector. In S. O. Idowu, S. Vertigans, & A. Schiopoiu Burlea (Eds.), *Corporate Social Responsibility in times of crisis: Practices and cases from Europe, Africa and the World* (pp. 111–125). Springer International Publishing.

Palacios Garay, J. P., Zavaleta Oliver, J. M., Chacarra Contreras, V., Diaz Flores, S. A., & Rodriguez Baca, L. S. (2021). Social responsibility in university students according to gender and age. *Health Education and Health Promotion*, 9(5), 513–519.

Peric, J., & Delic, A. (2016). Developing social responsibility in Croatian Universities: A benchmarking approach and an overview of current situation. *International Review on Public and Nonprofit Marketing*, 13(1), 69–80. <https://doi.org/10.1007/s12208-015-0144-5>

Rutherford, M., Parks, L., Cavazos, D., & White, C. (2012). Business ethics as a required course: Investigating the factors impacting the decision to require ethics in the undergraduate business core curriculum. *Academy of Management Learning & Education*, 11(2), 174–186. <https://doi.org/10.5465/amle.2011.0039>

# Social responsibility at a university – students’ perspectives

Rutti, R. M., LaBonte, J., Helms, M. M., Hervani, A. A., & Sarkarat, S. (2016). The service learning projects: stakeholder benefits and potential class topics. *Education + Training*, 58(4), 422–438. <https://doi.org/10.1108/ET-06-2015-0050>

Schulz, K.-P., Finstad-Milion, K., & Janczak, S. (2018). Educating corporate sustainability – A multidisciplinary and practice-based approach to facilitate students’ learning. *Journal of Cleaner Production*, 198, 996–1006. <https://doi.org/10.1016/j.jclepro.2018.06.104>

Sims, R. R., & Sims, S. J. (1991). Increasing applied business ethics courses in business school curricula. *Journal of Business Ethics*, 10(3), 211–219. <https://doi.org/10.1007/BF00383158>

Soderbaum, P. (2009). Making actors, paradigms and ideologies visible in governance for sustainability. *Sustainable Development*, 17(2), 70–81. <https://doi.org/10.1002/sd.404>

Syper-Jędrzejak, M., Ulrych, W., & Oltra, V. (2022). Understanding the declared knowledge and readiness to apply Corporate Social Responsibility of Polish and Spanish business students. *e-mentor*, 2(94), 8–18. <https://doi.org/10.15219/em94.1564>

Tormo-Carbo, G., Oltra, V., Klimkiewicz, K., & Segui-Mas, E. (2019). “Don’t try to teach me, I got nothing to learn”: Management students’ perceptions of business ethics teaching. *Business Ethics: A European Review*, 28(4), 506–528. <https://doi.org/10.1111/beer.12236>

Tormo-Carbo, G., Segui-Mas, E., & Oltra, V. (2016). Accounting ethics in unfriendly environments: The educational challenge. *Journal of Business Ethics*, 135(1), 161–175. <https://doi.org/10.1007/s10551-014-2455-6>

Vasilescu, R., Barna, C., Epure, M., & Baicu, C. (2010). Developing university social responsibility: A model for the challenges of the new civil society. *Procedia – Social and Behavioral Sciences*, 2(2), 4177–4182. <https://doi.org/10.1016/j.sbspro.2010.03.660>

Vazquez, J. L., Aza, C. L., & Lanero, A. (2015). Students’ experiences of university social responsibility and perceptions of satisfaction and quality of service. *Ekonomski Vjesnik/Econviews – Review of Contemporary Business, Entrepreneurship and Economic Issues*, 28, 25–39. <https://hrcaak.srce.hr/ojs/index.php/ekonomski-vjesnik/article/view/3091/1838>

**Albena Vutsova**, PhD, has been an active lecturer at Sofia University “St. Kliment Ohridski” since 2015. As a professor at the Faculty of Economics and Business Administration, she is responsible for educational activities and monitoring the portfolio of research and education projects. She has twenty years of professional experience in management of large-scale national and EU funded programs and education and research projects in various capacities such as Team Leader, Program/Project Manager, Head.

**Martina Arabadzhieva**, PhD, is a chief assistant professor at the Faculty of Economics and Business Administration, Sofia University “St. Kliment Ohridski”. From 2019 to 2021 she was a researcher (R2). Professionally, she has experience as a consultant in scientific journals, working with a global research database as well as engaging in various research projects.

**Todor Yalamov**, PhD, is Vice Dean of Research and Innovation at the Faculty of Economics and Business Administration, Sofia University “St. Kliment Ohridski” and cross-appointed professor at Soka University, Tokyo, Japan. He has diverse experience as an entrepreneur, manager, mentor, and trainer in the private and public sector. Todor was a Fulbright Scholar at the Center for International Private Enterprise, Washington DC (2013–2014).

## WE RECOMMEND



**EDEN 2024 Annual Conference, June 18–20, 2023, Dublin, Ireland**

The conference theme is “Learning in the Age of AI: Towards Imaginative Futures”.

We invite you to join us in a thoughtful exploration of the rapidly evolving landscape of education, as we adapt to the ever-increasing presence of AI and digital systems.

Our experiences in the journey with AI are still young and can be described as stories of trial and error, so sharing our experiences, expectations and hopes is vital. The digital revolution has ushered in exciting, promising, and imaginative changes, but it is also testing our beliefs about learning and education.

More information at: <https://eden-europe.eu/event/eden-2024-annual-conference/>



Abraham  
Gyamfi



Saranraj  
Loganathan



Rosemary  
Acquaye

## Improving teachers' classroom assessment practices: perceptions of teachers in the Ellembelle District of Ghana

### Abstract

This study looks at how teachers can improve their in-class assessment practice in the Ellembelle District in Ghana, and aims to identify the challenges confronted by teachers in classroom assessments, as well as ways to improve the classroom assessments themselves. A quantitative research method was adopted using a simple random sampling technique. The study was conducted among 207 professional teachers using a mailed questionnaire (primary data), which was analysed using statistical tools. The study found that teachers face many challenges in their classroom assessments, and thus proposed performance-based assessments, rubrics, peer assessment, portfolio assessment and self-assessment as strategies for improving classroom assessments. It is recommended that the Ghana Education Service ensure a decrease in strength in classrooms in the district, incorporate peer assessment, and conduct in-service training, self-assessment, and performance evaluation to improve effective classroom assessments.

**Keywords:** teachers' challenges, students' performance self-assessment, peer assessment, performance assessment, rubrics

### Introduction

In order to make decisions regarding the promotion, selection and directions of students, classroom assessments guide the whole procedure of gathering knowledge, whether through testing or observation performances. Teachers do their own evaluations and communicate the results to students, parents, and the broader public. According to research (Amua-Sekyi, 2016; Shogbesan & Faleye, 2016), assessments are a useful tool for enhancing students' learning in the classroom, offering opportunities for in-class practice, and creating a solid foundation for self-evaluation (Walker, 2012). In particular, teachers are required to use the assessments to help with the identification, remediation, and ongoing evaluation of learners (Areekkuzhiyil, 2021; Black & Wiliam, 2018). Classroom evaluations are always beneficial, because they provide a quicker gauge of students' growth and accomplishment, guide and enhance instructions, and identify gaps in students' subject-matter knowledge (Topping, 2017). They offer day-to-day assistance with teaching and learning, which is the cornerstone and foundation for achieving excellence in education and school improvement (Shogbesan & Faleye, 2016). They also assist teachers in identifying the areas of their lessons that need improvement, thus motivating them to do so (Topping et al., 2016).

Teachers are obliged to use effective and efficient assessment methods in the classroom, enabling students to demonstrate that they have acquired the necessary life-skills knowledge and abilities, which would improve the ways that schools educate and teach. Teachers' classroom practices and their knowledge of classroom assessments are both crucial for improving classroom assessments (Kingston & Nash, 2011;

Abraham Gyamfi, Wesley College of Education, Ghana,  <https://orcid.org/0000-0002-3189-1825>

Saranraj Loganathan, Mepco Schlenk Engineering College, India,  <https://orcid.org/0000-0003-0918-4849>

Rosemary Acquaye, Kwame Nkrumah University of Science and Technology, Ghana,  <https://orcid.org/0000-0002-6876-8038>

Walker, 2012). Ultimately, it is crucial to address the difficulties encountered by teachers and ways to overcome those difficulties. The assessment methods that instructors use are influenced by the philosophy that drives them.

---

## Research questions

---

The research questions are:

1. What challenges are faced by teachers in using classroom assessments?
2. How can classroom assessments be improved?

Ogan-Bekiroglu (2009) investigated the attitudes toward and skills used in educational assessments of 46 Turkish instructors who had completed an educational assessment course, using a parallel mixed-methodology approach. The findings showed that despite having constructivist beliefs and a high level of competency in educational assessments, the teachers nevertheless encountered some challenges with their assessment procedures. Class size and parental support were among the issues mentioned, which were also mentioned by Saxon and Morante (2014). These difficulties could make learning challenging in the classroom.

Sethusha (2012) looked into the issues impacting teachers' methods for assessing students in the classroom, and how these issues affected efficient teaching and learning. The study employed qualitative, instrumental case study methodology, using semi-structured interviews, observations, and document analyses. Interviews and observations were conducted with teachers from four different schools in Northwest Province, United Kingdom. The difficulties encountered by instructors in carrying out classroom assessments were determined using the information gathered through observations and interviews, as well as from documents used by teachers to carry out assessments. Document analysis was then used to confirm the information acquired through interviews and observation, and textual material was analysed using content analysis. The instructors' stories differed in accordance with their backgrounds and teaching experiences within the various contexts of their specific school environments. Major issues identified by this study were the interpretation of policies, overcrowding, support, parental involvement, moderation mechanisms (internal and external), evaluation planning, implementation, and communication, as well as a shortage in resources. To address these challenges, teachers primarily turned to their own personal experiences, cluster meetings, and their colleagues.

## How classroom assessments could be improved

According to Hoogeveen and van Gelderen (2013), self-assessments are among the key factors in classroom assessments, promoting student accountability and involvement. By doing their own assessments,

students feel more accountable for their learning and are more engaged in the entire teaching and learning process in the classroom.

Self-evaluation enables students to consider their part in and contribute to the group process (Etsey & Gyamfi, 2017), while metacognition – the process through which pupils examine their cognitive processes is a crucial component of self-assessments. Students consider what they want to accomplish with the lessons, and therefore challenge concepts. The focus on the improvement of students' judgment skills in self-assessments is another benefit of using them in classroom assessments (Ateh, 2015; Li et al., 2016). According to Li et al. (2016) and agreed by Etsey and Gyamfi (2017), students should be taught and trained in judgmental abilities in order to do successful self-assessments, meaning that with self-assessments students develop skills of making fair judgements.

The portfolio's advantages as a tool for assessments include its simplicity of integration into classroom instructions. Work that is assigned and finished over the year is stored in the portfolio (Price et al., 2011; Erzoah, Gyamfi, Yeboah & Langee, 2022). Additional exams or writing tasks are not required, because they can be taught and assessed, and the student portfolio, according to Ponnampereuma (2014), is an assessment that is consistent with instructions. Every high-quality portfolio includes students in some capacity, and students who are asked to gather, select, and reflect on what they wish to include in their portfolio may find the selection process to be quite informative and meaningful (Ponnampereuma, 2014).

Since students are frequently requested to analyse previous assignments and projects, as well as evaluate the merits and limitations of both their procedures and their final outputs, portfolios encourage self-reflection and awareness among students (Ponnampereuma, 2014). In their study, Hussain et al. (2019) stressed the value of portfolios in fostering students' growth as autonomous learners. When properly incorporated, portfolios can encourage collaboration between students and their teacher, as well as between students and their peers (Topping, 2018). Performance-based assessments, which have been around for a while now and have several benefits over traditional multiple-choice tests, are widely employed across the globe. In reality, according to Wiggins and McTighe (2005), authentic assessments are intended to do more than just test. They should demonstrate to students (and teachers) what it looks like to practice a subject and what sort of performance difficulties are truly valued most highly in a certain industry or career. In contrast to standardised examinations, which only provide the 'what' of a student's performance, PBAs can reveal 'how' and 'why' a student may be struggling.

Performance-based assessments (PBAs) are therefore able to assist teachers in determining how their pupils learn most effectively (Falk et al., 2007). PBAs,

when used as formative evaluations, offer quicker feedback than extensive standardised assessments. Standardised examinations can yield results after several months, but PBAs enables teachers to make significant changes while still instructing their existing students (Yulia, 2018). PBAs also permit assessment differentiation so that all students, especially those in special education and ELL classes, have a chance to show their understanding (Yulia, 2018).

Research indicates that performance-based assessment procedures can affect other teaching strategies in the classroom in addition to having an impact on student results. Performance-based assessments can alter particular classroom behaviours and procedures, even though changing basic teaching paradigms can be difficult. Peer assessment may be utilised for a range of outputs, including written work, oral presentations, projects, or other expert behaviours (Li et al., 2016).

Peer assessments are viewed as more than just a grading technique, because participating in the process advances the skills and knowledge of both the assessor and the pupils (Li et al., 2010; Topping, 2018). PBAs also enable assessment differentiation so that all students, especially those in special education and ELL pupils, have a chance to show their understanding (Yulia, 2018).

Research indicates that performance-based assessment procedures can affect other teaching strategies in the classroom in addition to having an impact on student results. Performance-based evaluation can alter particular classroom behaviours and procedures, even though changing broad teaching paradigms can be difficult (Li et al., 2016). Peer evaluations may be utilised for a range of outputs, including written work, oral presentations, projects, or other expert behaviours. Since participating in the process advances the skills and knowledge of both the assessor and the students, peer evaluation is seen as more than just a grading technique (Li et al., 2016; Li et al., 2010; Topping, 2018).

The main objective of peer assessments is to give students feedback (Hovardas et al., 2014; Hsia et al., 2016). Since students will always have more time available than instructors, this method may be especially useful in schools with a high student-to-teacher ratio. The research indicates that peer assessments can enhance learning, even when a single student's response might not be as detailed or in-depth as a teacher's feedback (Harrison et al., 2015; Topping, 2017).

## Methodology

A quantitative research method was adopted, with a simple random sampling technique deployed in this study. The study was carried out among 207 professional teachers in the Ellebelle District, Ghana, who have worked for at least two years (102 males and 105 females). A questionnaire was used to collect primary data using 4-point Likert scale. The data was

collected through a mailed questionnaire and was analysed using statistical tools such as Mean, Standard Deviation and Cronbach's Alpha. The internal consistency (Cronbach's alpha) of the questionnaire was 0.79, which was acceptable.

## Results

The major objective of this study was to learn more about the difficulties teachers encounter when implementing classroom assessments, and how to make improvements. Teachers were asked to rate their agreement or disagreement with statements regarding the difficulties encountered using classroom assessments, and ways to improve their practices using a 4-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree). The mean and standard deviation were analysed, and the scale had a total value of 10 (4 + 3 + 2 + 1). As a result, each of the four responses, out of a possible four, had a mean score of 2.5, the result being the sum of 10 divided by the four answers. The centre point on the four-point scale was likewise 2.5, and the minimum difference between 1 and 2.5, which equals 1.5, was divided by 2 to yield 0.75. As a result, the median cut-off values for the variables on the questionnaire were 3.25 – 4.00 for strong agreement, 3.24 – 2.50 for agreement, 2.49 – 1.75 for disagreement, and 1.74 – 1 for strong disagreement. A mean of 2.50 or higher suggests agreement among respondents, whereas a mean of 2.49 or lower shows disagreement. By adding up all of the responses to each item from each respondent and dividing by the total number of respondents who responded to that particular question, the mean of the items was estimated.

### Research question 1

#### *What are the challenges faced by teachers using classroom assessments?*

The results of the challenges faced by teachers using classroom assessments are shown in Table 1.

Table 1 shows the challenges faced by teachers using classroom assessments, and the results revealed that the teachers disagreed to face the stated challenges in their use of classroom assessments ( $M = 2.40$ ;  $SD = 0.812$ ). The mean was found to be less than the cut-off mean of 2.5. However, the teachers agreed that they faced 6 out of the 22 stated challenges (their means were greater than the cut-off mean of 2.5). The results of the challenges teachers faced in classroom assessments are presented in Table 2. The means of these statements were greater than the cut-off mean.

Table 2 shows that the challenges faced by teachers in classroom assessments are inadequate resources and materials, large class size, inability to write items for higher cognitive levels, an extensive curriculum, and difficulty in grading essay questions and developing rubrics.

# Improving teachers' classroom assessment practices ...

**Table 1**

*Challenges faced by teachers in classroom assessments*

Statements	N	Mean	Std. Deviation
Inadequate attention and resources in developing the classroom assessment process	207	3.10	0.852
Large class size makes is a challenge for me	207	2.88	0.846
It is difficult for me to write items for a higher cognitive level	207	2.75	0.780
It is difficult for me to calculate the central tendency	207	2.43	0.746
It is difficult for me to assess individual class participation	207	2.11	0.799
It is difficult for me to assess problem-solving skills	207	2.22	0.804
Extensive curriculum requirements pose problems in my classroom assessment	207	2.86	0.761
It is difficult for me to use assessment results for decisions	207	2.11	0.858
It is difficult for me to determine why students make mistakes	207	2.25	0.809
It is difficult for me to use assessment results to plan my teaching	207	2.04	0.844
It is difficult for me to communicate classroom assessment results	207	2.14	0.773
It is difficult for me to assess specific course objectives	207	2.16	0.750
It is difficult for me to develop systematic grading procedures	207	2.24	0.817
It is difficult for me to ensure tests cover the material taught	206	2.12	0.859

Source: authors' own work.

**Table 2**

*Teachers' predominant challenges faced in classroom assessments.*

Statements	N	Mean	Std. Deviation
Inadequate attention and resources in developing the classroom assessment process	207	3.10	0.852
Large class size makes is a challenge for me	207	2.88	0.846
It is difficult for me to write items for a higher cognitive level	207	2.75	0.780
Extensive curriculum requirements pose problems in my classroom assessment	207	2.86	0.761
It is difficult for me to consistently grade essay questions	207	2.99	0.731
It is difficult for me to develop rubrics (marking keys)	207	2.97	0.862

Source: authors' own work.

## Research question 2

### *How can classroom assessments be improved?*

Table 3 shows that teachers ( $M = 3.11$ ;  $SD = 0.556$ ) strongly agreed that using performance-based assessments would help reduce some challenges that they face in classroom assessments, and thus improve assessments in the classroom. It was observed from the

teachers' point of view that using rubrics or marking schemes ( $M = 2.80$ ;  $SD = 0.664$ ) can help alleviate some of the challenges teachers face in classroom assessments. It was found that teachers believe that using peer assessments ( $M = 2.80$ ;  $SD = 0.709$ ) would be effective in dealing with challenges faced in classroom assessments. Also, teachers ( $M = 2.85$ ;  $SD = 0.725$ ) agreed that using portfolio assessments

**Table 3**

*Perceived solution for teachers in classroom assessments*

Statements	N	Mean	Std. Deviation
Using performance-based assessments	207	3.11	0.556
Using rubrics	207	2.80	0.664
Using peer assessments	207	2.80	0.709
Using portfolio assessments	207	2.85	0.725
Using self-assessments	207	3.12	0.658

Source: authors' own work.

is another way to overcome challenges in classroom assessments. Moreover, teachers perceived the use of self-assessments ( $M = 3.12$ ;  $SD = 0.658$ ) as a way of dealing with challenges in classroom assessments. The predominant solution expressed by the teachers (with the highest mean of 3.12) was the use of self-assessments that could be enhanced through training or further studies.

---

### Discussions

---

The study question aimed to learn more about the difficulties teachers in the Ellembelle District encountered when implementing classroom assessments. The findings indicated that teachers in Ellembelle had difficulties with classroom evaluation. Large class sizes, limited resources, and certain restrictions on knowledge and skill assessments are difficulties they experienced. These results are consistent with the findings of several scholars, including Alkharusi et al., (2011), Ogan-Bekiroglu (2009), Sethusha (2012), and Susuwele-Banda (2005), who found that demographics, teacher beliefs, teacher training, class size, and teacher experience in actual classroom teaching may all have an impact on how teachers assess students. The largest challenges to classroom assessments, according to Metin (2013) and Hussain et al. (2019), are large class sizes, demanding curricula, and a lack of resources for establishing the classroom assessment process. The results provide more support for Ramsuran's research, which was cited by Chand (2017). Ramsuran revealed that teachers' high workloads for satisfying policy criteria are a major barrier to their ability to effectively apply assessment policies. According to the report, marking took up a reasonable amount of time, ranging from 18% to 36% of the total teaching time available, while portfolio creation and mark entry took up a significant amount of time.

Additionally, the findings, which indicate that teachers experienced some challenges concerning their evaluation techniques, are not all that dissimilar from those of Ogan-Bekiroglu (2009). Class size, parental support, teacher expertise and attitudes regarding educational assessment were among the challenges mentioned. Metin (2013) discovered that teachers required adequate knowledge, skills, and abilities regarding rubrics.

---

### Ways to improve classroom assessment practices

---

The goal of the research question was to collect input from participants on possible solutions for overcoming the difficulties associated with using classroom assessments. The results back up Wiggins and McTighe (2005), who claimed that authentic assessments are actually intended to do more than just test. They should demonstrate to students (and teachers) what practicing a subject looks like and the sorts of performance difficulties that are

valued most highly in a certain industry or career. The findings of Falk et al. (2007) discovered that performance-based assessments (PBAs), when used in conjunction with a well-designed measurement tool like a scoring rubric, can reveal 'how' and 'why' a student may be having difficulty. Performance-based assessments (PBAs) can therefore genuinely assist teachers in determining how their students learn most effectively.

Falk et al. (2007) pointed out that PBAs, when used as a formative evaluation, also offer more immediate feedback than extensive standardised assessments. Standardised examinations can yield results after several months, but PBAs enable teachers to make significant changes while continuously instructing their existing students. This study also supports Ogan-Bekiroglu's (2009) assertion that in order to address the difficulties with classroom assessments, educational system reforms should take into account instructors' knowledge of and attitudes toward educational evaluation. In research to address comparable issues, Sethusha (2012) discovered that teachers depended on cluster meetings, their peers, and primarily their own experiences to resolve these issues. It could be seen that all the suggested solutions were about in-service training and teacher development, which were to cause an increase in knowledge and skills related to classroom assessments. This is probably due to the fact that the researchers believe that the increase in knowledge and skills in assessments has the potential of helping teachers to overcome other challenges, such as resources and class size.

---

### Conclusion

---

Despite the knowledge and use of classroom assessments, teachers still battle with challenges such as large class size, extensive curriculum requirements and difficulty in writing items to measure higher order cognitive levels, which limit how far teachers can go with classroom assessments. The use of self and peer assessments, as well as portfolio and performance-based assessments, could help reduce the challenge for both male and female teachers. It is recommended that teachers in the Ellembelle District involve peer assessments, self-assessments and performance assessments in their practices to improve classroom assessments.

---

### References

---

- Alkharusi, H., Kazem, A. M., & Al-Musawai, A. (2011). Knowledge, skills, and attitudes of preservice and inservice teachers in educational measurement. *Asia-Pacific Journal of Teacher Education*, 39(2), 113–123. <https://doi.org/10.1080/1359866X.2011.560649>
- Amua-Sekyi, E. T. (2016). Assessment, student learning and classroom practice: A review. *Journal of Education and Practice*, 7(21), 1–6.
- Areekkuzhiyil, S. (2021). Issues and concerns in classroom assessment practices. *Edutracks*, 20(8), 20–23.

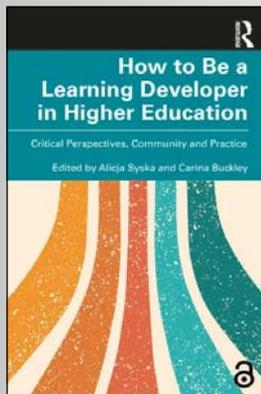
- Ateh, C. M. (2015). Science teachers' elicitation practices: Insights for formative assessment. *Educational Assessment, 20*(2), 112–131. <https://doi.org/10.1080/10627197.2015.1028619>
- Black, P. J., & Wiliam, D. (2018). Classroom assessment and pedagogy. *Assessment in Education Principles Policy and Practice, 25*(6), 515–575. <https://doi.org/10.1080/0969594X.2018.1441807>
- Chand, R. (2017). Challenges faced by teachers in carrying out classroom assessment in upper primary social science. *IRA International Journal of Education and Multidisciplinary Studies, 9*(3), 25–29. <http://dx.doi.org/10.21013/jems.v9.n3.p1>
- Etey, Y. K. A. & Gyamfi, A. (2017). Improving assessment of learning in mathematics through assessment as learning. *Journal of Educational Assessment in Africa, 12*(1), 11–20.
- Falk, B., Ort, S.W., & Moirs, K. (2007). Keeping the focus on the child: Supporting and reporting on teaching and learning with a classroom-based performance assessment system. *Educational Assessment, 12*(1), 47–75. <https://doi.org/10.1080/10627190709336947>
- Harrison, K., O'Hara, J., & McNamara, G. (2015). Re-thinking assessment: Self- and peer-assessment as drivers of self-direction in learning. *Eurasian Journal of Educational Research, 60*, 75–88.
- Hoogeveen, M., & van Gelderen, A. (2013). What works in writing with peer response? A review of intervention studies with children and adolescents. *Educational Psychology Review, 25*(4), 473–502. <https://doi.org/10.1007/s10648-013-9229-z>
- Hovardas, T., Tsivitanidou, O. E., & Zahcharias, C. Z. (2014). Peer versus expert feedback: An investigation of the quality of peer feedback among secondary school students. *Computers & Education, 71*, 133–152. <http://dx.doi.org/10.1016/j.compedu.2013.09.019>
- Hsia, L. H., Huang, L., & Hwang, G. J. (2016). A web-based peer-assessment approach to improving junior high school students' performance, self-efficacy and motivation in performing arts courses. *British Journal of Educational Technology, 47*(4), 618–632. <https://doi.org/10.1111/bjet.12248>
- Hussain, S., Shaheen, N., Ahmad, N., & Islam, S. U. (2019). Teachers' classroom assessment practices: Challenges and opportunities to classroom teachers in Pakistan. *The Dialogue, 14*(1), 88–97.
- Kingston, N. M., & Nash, B. (2011). Formative assessment: A meta-analysis and a call for research. *Educational Measurement: Issues and Practice, 30*(4), 28–37. <https://doi.org/10.1111/j.1745-3992.2011.00220.x>
- Li, H., Xiong, Y., Zang, X., L. Kornhaber, M., Lyu, Y., Chung, K. S., & K. Suen, H. (2016). Peer assessment in the digital age: A meta-analysis comparing peer and teacher ratings. *Assessment & Evaluation in Higher Education, 41*(2), 245–264. <https://doi.org/10.1080/02602938.2014.999746>
- Li, L., Liu, X., & Steckelberg, A. L. (2010). Assessor or assessee: How student learning improves by giving and receiving peer feedback. *British Journal of Educational Technology, 41*(3), 525–536. <https://doi.org/10.1111/j.1467-8535.2009.00968.x>
- Metin, M. (2013). Teachers' difficulties in preparation and implementation of performance task. *Educational Sciences: Theory & Practice, 13*(3), 1664–1673.
- Ogan-Bekiroglu, F. (2009). Assessing assessment: Examination of pre-service physics teachers' attitudes towards assessment and factors affecting their attitudes. *International Journal of Science Education, 31*(1), 1–39. <https://doi.org/10.1080/09500690701630448>
- Ponnamperuma, G. G. (2014). Portfolio assessment. *Journal of the Postgraduate Institute of Medicine, 1*(4), 1–8. <https://doi.org/10.4038/jpgim.7329>
- Price, J., Pierson, E., & Light, D. (2011). Using classroom assessment to promote 21st Century learning in emerging market countries. In S. Barton, J. Hedberg, & K. Suzuki (Eds.), *Proceedings of Global Learn Asia Pacific 2011 – Global Conference on Learning and Technology* (pp. 419–429). Association for the Advancement of Computing in Education (AACE). <https://www.learntechlib.org/primary/p/37206/>
- Saxon, P. D., & Morante, E. A. (2014). Effective student assessment and placement: Challenges and recommendations. *Journal of Developmental Education, 37*(3), 12–17.
- Sethusha, M. J. (2012). *An investigation of the challenges affecting teachers' classroom assessment practices* [Doctoral dissertation]. University of South Africa.
- Shogbesan, Y. O., & Faleye, B. A. (2016). “Teaching to the test”: An innovative assessment for learning strategy? *International Journal of Education and Research, 4*(8), 36–51.
- Susuwele-Banda, W. J. (2005). *Classroom assessment in Malawi: Teachers' perceptions and practices in Mathematics* [Doctoral dissertation]. Virginia Polytechnic Institute and State University. [https://vtechworks.lib.vt.edu/bitstream/handle/10919/26269/wjs-b\\_dissertation\\_JAN2005.pdf?sequence=1&isAllowed=y&ns](https://vtechworks.lib.vt.edu/bitstream/handle/10919/26269/wjs-b_dissertation_JAN2005.pdf?sequence=1&isAllowed=y&ns) and Classroom Assessment Practices in Mathematics in primary Schools in Malawi (vt.edu)
- Topping, K. J. (2017). Peer assessment: Learning by judging and discussing the work of other learners. *Interdisciplinary Education and Psychology, 1*(1), 1–17. <https://doi.org/10.31532/InterdiscipEducPsychol.1.1.007>
- Topping, K. J. (2018). *Using peer assessment to inspire reflection and learning*. Routledge. <https://doi.org/10.4324/9781351256889>
- Topping, K., Duran, D., & Van Keer, H. (2016). Using peer tutoring to improve reading skills: A practical guide for teachers. Routledge. <https://doi.org/10.4324/97813515731032>
- Walker, D-M. (2012). Classroom assessment techniques: An assessment and student evaluation method. *Creative Education, 3*(6A), 903–907. <https://doi.org/10.4236/ce.2012.326136>
- Wiggins, G., & McTighe, J. (2005). *Understanding by design* (2nd ed.). Association for Supervision and Curriculum Development ASCD.
- Yulia, M. F. (2018). Using performance assessment with EFL learners in pronunciation class. *The Asian EFL Journal, 20*(1), 47–56.

**Abraham Gyamfi** is currently a lecturer at the Department of Educational Studies, Wesley College of Education, Kumasi, Ghana. He has 18 and 7 years of teaching and researching experience, respectively, and has published 30 articles, both in national and international journals. His area of specialisation is measurement and evaluation, and his research interest is in classroom assessments and pedagogy.

**Dr. L. Saranraj** is currently working as Assistant Professor of English, Department of English, Mepco Schlenk Engineering College (Autonomous), Sivakasi, Tamil Nadu, India. He has around 9 years teaching experience and around 2 years research experience. He has published 14 research papers, three books and a patent, and is an eminent scholar with much research potential in the field of English Language teaching and applied sociolinguistics with empirical statistics.

**Rosemary Acquaye** is Master of Philosophy (Field Epidemiology and Applied Statistics) student of the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. She is a practicing nurse, with 12 years experience. She is currently working at the Agona Nkwanta Polyclinic, Ghana, as a Nursing Officer. Her area of specialisation is nursing practice and data analysis. She has published 5 articles in international journals.

## WE RECOMMEND



Alicja Syska, Carina Buckley (Eds.)

*How to Be a Learning Developer in Higher Education. Critical Perspectives, Community and Practice*

Filled with practical guidance for those working in and interested in the emergent field of Learning Development, this must-read book encapsulates what it means to be a Learning Developer and how to thrive in this role.

With carefully constructed contributions which explore different aspects of the role, this edited collection is comprehensive in its approach. Alongside practical advice, it is underpinned by theoretical and epistemological insights to provide a bridge between theory and practice.

Organised into five key parts, it is arranged in a way that reflects the journey that practitioners take into and through Learning Development, from their initiation into the field, through professional development, to becoming an established expert. It covers key topics such as:

- the basic principles of working in Learning Development
- the theoretical and practical foundations of the field
- how to engage more critically with the role
- how to become an active contributor to the field through research and publication
- the as-yet unrealised possibilities of Learning Development

Capturing a diverse array of voices, experiences, and perspectives, this book is an essential guide for both new and established practitioners concerned with student Learning and Development.

Date of publication: November, 2023

Publisher: Routledge

Source of the description: <https://www.routledge.com/How-to-Be-a-Learning-Developer-in-Higher-Education-Critical-Perspectives/Syska-Buckley/p/book/9781032560076>



Igor  
Rižnar

# Navigating micro-credentials: An analysis of student needs, perceptions and skills development at a Slovenian university

## Abstract

In this paper, the author analysed the responses to a questionnaire about micro-credentials of several groups of students studying at the Faculty of Management, University of Primorska in Slovenia in order to see how familiar they were with the concept, their perceived value of micro-credentials and their willingness to participate in such short courses. The study showed, first, that only a small number of students were well-acquainted with the concept; second, that students would be willing to attend such courses; third, that there were substantial differences between different groups of students regarding what they thought they needed the most. Based on the research, the author saw the potential of micro-credentials not only for bridging the skills gap and catering for labour market need, but also for acquiring new skills, upskilling and – in the case of Slovenian undergraduate and postgraduate students – for timely completion of their studies.

**Keywords:** competencies, employability, lifelong learning, micro-credentials, skills, up-skilling

---

## Introduction

Micro-credentials (M-Cs) have gained substantial attention globally and within the European Union (EU) as a tool for addressing the skills gap, promoting lifelong learning and enhancing employability (Varadarajan et al., 2023, Wheelan & Moodie, 2021). M-Cs challenge traditional educational paradigms by introducing shorter, more flexible learning units (Council of the European Union, 2022, OECD, 2023).

One of the topics rarely discussed in the context of growing interest in M-Cs in the EU education area is the completion of studies, a topic of interest in countries where students need a considerable amount of time to graduate after they have passed all their exams. This is often due to the lack of certain academic, personal and professional skills required to complete their university education – skills that help students succeed in their studies while also preparing them for their future careers and personal development. These include skills in critical thinking, problem-solving, writing and communication, time management, analysis, self-motivation, technological proficiency, etc. Ubiquitous as such skills are in school curricula at HEIs worldwide, and often taken for granted by employers as being brought by graduates to the workplace, even undergraduates who have passed all exams may often lack them. According to OECD (2019) they belong to the group of skills that need to be constantly upgraded in both graduates and post-graduates.

---

## Purpose and scope

This paper opens with a review of selected research literature, is followed by the method section in which we describe sampling, population and carry out statistical analysis. The paper concludes with a discussion of the results, research limitations and conclusions.

---

### Literature review

---

Research on M-Cs includes numerous academic papers, EU policy documents and reports, which aim at broadening the understanding of the current state and prospects of M-Cs. Topics range from giving a theoretical rationale for micro-credentials, including a definition (Brown & Mhichil, 2022; Brown et al 2021; Council of the European Union, 2022), to depicting their potential for the European education landscape (Futures et al., 2020) or providing a critical overview of micro-credentials (Ralston, 2021). Studies often focus on individual components of the concept of M-Cs – for instance, the so-called stackability (Fisher & Leder, 2022; Woods & Woods, 2021) or reskilling, upskilling (Zhang & West, 2020), or compare the hype about M-Cs with the hype about Massive open online courses (MOOCs) (Wheelahan & Moodie, 2021). Indeed, some researchers believe that M-Cs are only a marketing hype (Doran, 2017; Maloney & Kim, 2019).

A comprehensive review of literature can be found in Tamoliune et al. (2023), where the authors present an in-depth analysis of literature on M-Cs regarding the economic (reskilling and upskilling; employers' needs and employability), social (lifelong learning; career guidance and welfare) and higher education context (assessment and recognition; stackability; curriculum integration and learning design solutions). This review focused on the potential of M-Cs to support the post-COVID-19 pandemic recovery by offering opportunities to individuals to upskill, reskill and acquire new skills. The review advocated for a more integrative research approach, which would increase the understanding of the multidimensional impact of M-Cs.

Another review of the literature can be found in Varadarajan et al. (2023), where the authors analysed 60 publications about M-Cs in higher education published between 2015 and 2022 and concluded that different stakeholders have different expectations regarding M-Cs and that interaction among stakeholders is of utmost importance for their successful implementation. A comprehensive review of the literature can also be found in Ha et al. (2023), where the authors examined academic literature on M-Cs published between 2012 and 2022 and stressed that M-Cs could bring benefits to higher education, but also acknowledged that they were still in an early stage of development and that further research was needed to evaluate their long-term viability and effectiveness. In a meta-study by McGreal and Olcott (2022), the authors provide an introductory guide for university leaders about M-Cs, highlighting some of the challenges of standardising them across different countries. They also included examples of how different institutions had incorporated them and concluded by noting that M-Cs could complement other major initiatives within universities, but could not become a solution for all challenges nor a significant source of revenue.

OECD (2021) pointed out that while there were many innovative developments taking place at higher education institutions (HEIs), there was a lack of agreement about how MCs should be defined and implemented, which prevented both learners and employers from understanding their characteristics and benefits.

Another important literature review on M-Cs was featured in the special issue of the *International Journal of Education Technology in Higher Education*, where the editors (Mhichil et al., 2023) brought together diverse perspectives on M-Cs and arrived at the conclusion that the main challenge lies in demonstrating that M-Cs were worth taking and could truly aid learners.

The EU has issued several documents and communications on the topic of M-Cs (Council of the European Union, 2022; European Commission, 2020a; European Commission, 2020b), where guidelines for the development, issuance and recognition of M-Cs across the EU were provided. The documents and communications collectively outlined the EU's stance on MCs, highlighting their role in lifelong learning, employability and the recognition of skills and competencies by emphasising the need for their standardisation and quality assurance.

Lately, potential uses and benefits of M-Cs for lifelong learning and employability were discussed in a paper published by the OECD (2023). The article also discussed M-Cs' role in broadening pathways from upper secondary to higher education and the completion of the undergraduate studies, especially through modularisation and stacking. Oliver (2019) also reported that the completion time of the education was one of the difficulties that students in formal education were often faced with. The idea of using M-Cs to improve HE completion was also an important driving force for this present study's research.

Despite numerous journal articles, European activities and a variety of ongoing projects at higher education institutions in the European higher education area, many questions remain unanswered. A unanimous decision about the definition of the term has not been reached, there were doubts about the size in terms of credit points of these learning experiences, and diverse views regarding their overall design.

---

### Research methodology

---

#### Sample selection and questionnaire preparation

A total of 103 questionnaires were collected, of which 50 were filled in by the first-year students (31 of whose course was carried out in English), 38 by students on the vocational undergraduate programme/course and 15 postgraduate students.

For this research, the authors have chosen a combination of quantitative and qualitative research methods. In the initial stage of the questionnaire's preparation, the authors engaged with a focus group of second-year students ( $n=27$ ) to obtain information

## Navigating micro-credentials: An analysis of student needs...

about their perceived importance of different skills, their familiarity with the concept of micro-credentials and their opinion about the role of M-Cs in HE.

At first, this group was not familiar with the term M-Cs, and thus did not have an opinion about their importance or the role they might have in HE. After a considerable amount of time during which the students became acquainted with the concept of M-Cs by studying documents available at <https://education.ec.europa.eu/education-levels/highereducation/micro-credentials> at home, and several subsequent long discussions about the relevance, benefits and challenges related to M-Cs, the students were asked to prepare a list of M-Cs that interested them most and which they would likely participate in if such short courses were offered by the Faculty of Management. This group of students was also asked to think about M-Cs in terms of learning experiences that would help them complete their studies in less than four years.

The list of M-Cs covering the following skills was proposed by the group of second year students: 1) time management skills; 2) negotiations skills; 3) public speaking skills; 4) basic coding skills; 5) leadership skills; 6) self-management skills; 7) general computer skills; 8) teamwork skills; 9) general communication skills; 10) self-motivation skills; 11) learning skills (learn-to-learn skills); 12) decision-making skills; 13) advanced coding skills; 14) critical-thinking skills; 15) problem-solving skills; 16) creative-thinking skills. See the appendix for more details.

Their choice of MCs seemed completely reasonable as M-Cs should cater for the needs of individuals (students or not), companies, and employees at all stages in their life. A micro-credential covering advanced coding is, on one hand, a highly demanded skill by many employers and, on the other hand, a vehicle for promoting lifelong learning. Many other M-Cs proposed by our second-year students can be seen as a helpful short learning experience helping them to get through their studies.

The World Economic Forum (WEF, 2023) proposed that analytical and creative thinking were the most important skills for workers in 2023. Among other important skills, the WEF also mentioned technological skills (technology adoption, big data, AI and cloud computing), problem-solving skills, systems thinking skills, lifelong learning and curiosity, resilience, flexibility and agility.

Time management skills help students to allocate time efficiently, which leads to better academic performance and reduced stress (Adams & Blair, 2019); negotiation skills can be used in group projects, as they aid students in resolving conflicts, collaborating effectively and advocating for their needs; public speaking skills are crucial for class presentations, debates and expressing ideas confidently (Taylor et al., 2008).

Developing public speaking skills may also prepare students for future professional roles (Grieve et al., 2021).

Understanding basic coding skills is important even if students do not pursue a tech career, because understanding coding fosters logical thinking and problem-solving and is advantageous for research, data analysis and an overall understanding of technology's impact on society (Kalelioglu & Gulbahar, 2014).

Leadership skills are valuable for group projects and future leadership roles, because they empower students to guide and inspire their peers (Uaikhanova et al., 2022). Self-management skills equip students with discipline, organisation and the ability to handle responsibilities effectively while balancing studies, part-time jobs and their personal life (Stan, 2021). As students rely heavily on computers for their research, assignments and communication, general computer skills enhance their productivity and information retrieval (Cadiz-Gabejan & Takenaka, 2021).

Teamwork skills are a must in many academic and extracurricular activities and help students collaborate, respect diverse perspectives and achieve common goals (Do & Nguyen, 2023). General communication skills are crucial for active class participation, discussions and relationship building as they foster better understanding and meaningful interactions (Shah et al., 2020). Good motivation skills help students set and achieve goals while being faced with academic challenges and distractions (Steinmayr et al., 2019). Learn-to-learn (or metacognition) skills enhance students' retention, adaptability and the ability to grasp complex concepts while learning and acquiring new knowledge (Abdelrahman, 2020).

Decision making skills not only aid students in evaluating options and choosing paths aligned with their aspirations when faced with challenges related to their coursework, but also help them in their private life (Majeed, 2021). In the technology-driven world, advanced coding skills may provide a competitive edge and open opportunities for internships and specialised roles for many students (Scherer et al., 2021).

Critical thinking skills help students evaluate information, analyse arguments and approach problems from different angles. This is an essential skill for academic essays, research and making informed judgements (Nor & Sihes, 2021). Problem-solving skills help students to tackle difficult situations, find appropriate solutions and adapt to changing circumstances, both in academic and personal life (Amran et al., 2019). Creative thinking skills foster innovation and unique approaches to assignments and projects and prepare students to tackle complex problems from fresh perspectives (Yang & Zhao, 2021).

Items 14 to 16 were not to include in the questionnaire (see the appendix), as the authors wanted to see how many respondents would mention them in the last item of the questionnaire, where they were asked to think about at least three M-Cs that were not included among the 13 items given. The plan was that these items would be added to the questionnaire in a subsequent study to see how many students would select them. The results for the 2022–2023 groups of first-year students showed that only a few

students mentioned them. The authors assumed that a considerably higher number of respondents would choose critical thinking, problem solving and creative thinking skills once they had become given items on the list.

The questionnaire was given to four groups of students (first-year university programme in Slovenian, first-year university programme in English, first-year vocational programme, second-year university programme and a smaller group of postgraduate students in the

Management M.A. programme) during lectures and took only five and ten minutes to complete. After a brief introductory note, respondents were asked to answer three general questions (in which year and programme of studies they were, how familiar they were with the term M-C, and if they believed M-Cs were adding real value in terms of learners' efficiency, effectiveness and productivity). In the fourth item in the questionnaire, respondents were asked which M-Cs they would attend if they had been offered by the institution where they studied. The last item required a longer response; namely, students were asked to think about two or three M-Cs they would add to the list of M-Cs.

The authors computed the means, medians, standard deviation and percentages of the gathered data. Non-probabilistic sampling was used for the research (the so-called "convenience sampling") to gather data from a sample that was easily accessible and readily available. This sampling method was chosen for its practicality as the aim was to obtain answers

from those students studying at the University of Primorska (UP).

## Results

The research showed that only 16.5% of respondents were familiar with the concept of M-Cs, 33% had heard about them, while almost half of the students were not familiar with the concept. These results were expected as Slovenian HEIs have only just started projects for their development and implementation.

As seen from Table 1 below, the respondents rated public speaking skills as most important (68% of respondents chose this item), self-motivation and decision-making skills were selected by approximately 55% of students, time management skill and leadership skills took third place, selected by 50% of respondents. Interestingly, and somewhat worryingly, three-quarters of students did not think they needed basic coding skills (24%), general computer skills (23%), or advanced coding skills (16.5%). On the other hand, they were fairly interested in negotiation skills (45.6%), but not so much in general communication skills (32%) and self-management skills (34%). M-Cs for improving teamwork skills would attract the attention of only a quarter of the respondents, as would the learn-to-learn skills (24%).

Descriptive statistical analysis showed considerable differences regarding the interest in the above skills among different groups of respondents, as seen in Table 2 and Table 3.

Overall, the scores show a mix of symmetrical and skewed distributions across different M-Cs. Some

**Table 1**

*Micro-credentials as selected by groups of students*

	Uni1_en n = 31 (%)	Uni1_sl n = 19 (%)	Voc1 n = 38 (%)	PostG n = 15 (%)
Micro-credential on				
time management	12 (38.7)	14 (73.7)	23 (60.5)	4 (26.6)
negotiations	11 (35.5)	10 (52.6)	20 (52.6)	6 (40)
public speaking	20 (64.5)	13 (68.4)	26 (68.4)	11 (73.3)
basic coding	9 (29)	8 (42.1)	4 (10.5)	4 (26.6)
leadership skills	11 (35.5)	10 (52.6)	24 (63.1)	8 (53.3)
self-management	11 (35.5)	10 (52.6)	9 (23.7)	4 (26.6)
general computer skills	10 (32.3)	4 (21)	7 (18.4)	3 (20)
teamwork	1 (3.2)	5 (26.3)	13 (34.2)	5 (33.3)
general communication	3 (9.7)	7 (36.8)	17 (44.7)	5 (33.3)
self-motivation	11 (35.5)	12 (63.1)	27 (71)	7 (46.7)
learning (learn-to-learn)	7 (22.6)	7 (36.8)	7 (18.4)	3 (20)
decision-making	16 (51.6)	13 (68.4)	17 (44.7)	10 (66.7)
advanced coding	9 (29)	5 (26.3)	2 (5.3)	1 (6.7)

Note. Uni1\_en – first-year English undergraduate university programme in Management

Uni1\_sl – first-year Slovene undergraduate university programme in Management

Voc1 – first-year English undergraduate vocational programme in Management

PostG – first-year postgraduate programme in Management.

Source: author's own work.

# Navigating micro-credentials: An analysis of student needs...

**Table 2**

*Descriptive statistics by micro-credential*

Micro-credential	Mean	Median	Standard Deviation
time management	13.25	13.0	7.89
negotiations	11.75	11.0	6.50
public speaking	17.5	16.5	7.43
basic coding	6.25	6.0	2.36
leadership	13.25	11.0	7.24
self-management	8.5	9.0	3.32
general computer skills	6.0	5.5	2.27
teamwork	6.0	5.0	4.14
general communication	8.0	6.0	6.08
self-motivation	14.25	11.5	8.61
learning (learn-to-learn)	6.0	7.0	1.83
decision-making	14.0	14.5	3.08
advanced coding	4.25	3.5	3.59

Source: author's own work.

areas like basic coding and general computer skills have uniformly lower scores, while others like public speaking and self-motivation have higher average scores but also a wider range of scores (as indicated by the standard deviation).

A closer look at the standard deviation for the above micro-credentials indicated two things:

- a larger standard deviation (e.g. for “public speaking” or “time management”) meant there was a wider variation in the number of students across groups that had an interest in this M-C, which meant that certain groups were more interested in certain skills than other groups.

- a smaller standard deviation (e.g. for “basic coding”) meant that the number of students interested in such M-Cs was more consistent across the groups.

First-year university students in the English programme disagreed with their counterparts in the Slovenian programme with regard to almost all skills. They were either keener to join a MC if offered (in the case of general computer skills (32% vs 21%) or coding skills (29% vs 26%), or less keen (time management (39% vs 73%), leadership skills (35% vs 53%), teamwork skills (3% vs 26%), (self-)motivation (35% vs 63%). These two groups seemed to agree only about public speaking skills (64% vs 68%).

The group of postgraduate students also exhibited some differences from all three groups of first-year undergraduate students: only a quarter of them considered time management skills highly important but rated public speaking and decision-making skills highly (73% and 66.7%). On the other hand, only a few respondents would attend M-Cs in the areas of general computer skills (20%), learn-to-learn skills (20%) or coding skills (7%).

Respondents in the first-year vocational programme believed they should improve their self-motivation (71%), and their public speaking skills (68.4%), leadership skills (63%) and time management skills (60.5%). They would rarely attend M-Cs offering advanced coding skills (5%), basic coding skills (10.5%), general computer skills (18.4%), but would be willing to participate in M-Cs covering negotiations skills (52.6%), general communication skills (44.7%) and decision-making skills (44.7%).

The results also showed that slightly more than half of the respondents thought such courses might be useful (51.3%) or were even sure about this (20%). On the other hand, some respondents were not sure whether they were or were not useful (25%) and only

**Table 3**

*Percentages for each micro-credential across different student groups*

Micro-credential	Uni1_en	Uni1_sl	Voc1	PostG
time management	38.71%	73.68%	60.53%	26.67%
negotiations	35.48%	52.63%	52.63%	40.00%
public speaking	64.52%	68.42%	68.42%	73.33%
basic coding	29.03%	42.11%	10.53%	26.67%
leadership	35.48%	52.63%	63.16%	53.33%
self-management	35.48%	52.63%	23.68%	26.67%
general computer skills	32.26%	21.05%	18.42%	20.00%
teamwork	3.23%	26.32%	34.21%	33.33%
general communication	9.68%	36.84%	44.74%	33.33%
self-motivation	35.48%	63.16%	71.05%	46.67%
learning (learn-to-learn)	22.58%	36.84%	18.42%	20.00%
decision-making	51.61%	68.42%	44.74%	66.67%
advanced coding	29.03%	26.32%	5.26%	6.67%

Source: author's own work.

three students (2.9%) thought they did not add value to their learning experience.

Creative thinking skills were mentioned by only three students, problem-solving skills by 11 (10.6%) and critical thinking skills by 14 students (13.6%). On the other hand, students added a substantial number of different M-Cs to the list: 1uni\_en group added 32 items, 1uni\_sl added 26 items, 1Voc students added 14 items and PostG students added 21 items. Around 10% of students were interested in M-Cs that would improve their financial literacy skills or digital marketing skills (6%), and the list of skills the students were interested in also included the following: content creation skills; data analysis; environmental awareness; sustainability; data mining; foreign language skills; intercultural skills; project management skills; and change management skills.

---

## Discussion

This research showed several things: first, that students had limited awareness of micro-credential initiatives carried out by their HEI, but often knew in which areas they lacked skills or knowledge and would most likely be willing to improve them if M-Cs were offered by their HEI. Second, their opinion about upskilling, reskilling and acquiring new skills was not always shared with a management guru like WEF, or with their counterparts who participated in the questionnaire preparation, as they rarely mentioned the need for improvement in areas in which almost all stakeholders agreed were important (critical thinking skills, creative thinking skills, analytical skills, problem solving). Other important cognitive skills that were never mentioned by respondents were systems thinking, reading and writing skills and active listening skills.

The differences regarding the respondents' willingness to participate in M-Cs covering different skills could be explained by the fact that learners with no prior working experience rarely prioritised their skills in the same manner as more experienced postgraduate students, who were more familiar with business priorities and the efforts to close the skills gap.

The results also showed that the respondents rarely expressed the need to improve their technological literacy skills or basic coding skills, despite the huge impact these skills have on the graduates' employability potential.

---

## Conclusion, limitations, future research and implications

The responses gathered from the focus group (second-year students) and through the questionnaire showed that even though students were not familiar with this relatively new concept, many of them expressed an interest in attending these short learning experiences and added several good suggestions for additional short courses that they thought they needed the most. Around 20% of the respondents were sure that M-Cs would add value to their learn-

ing experience, with an additional 51% believing that they might be useful, and less than a third thinking that M-Cs might not add a lot or any value to their learning experience.

This research focused exclusively on several groups of students enrolled in undergraduate and postgraduate programmes at the Faculty of Management at the University of Primorska in Slovenia. The convenience sampling used in this study prevented the researcher from making the findings universally valid and reliable, yet the findings might be valid for students who often need a longer period of time for the completion of their studies. The author hopes that teachers in higher education outside the Faculty of Management may use some of the findings of this research to help their students achieve their best through the introduction of micro-credentials that address the skills that their students need to upgrade to complete their studies in shorter time and to bring with them the skills that also matter to the job market. We focused on shorter courses for our current students to improve their academic work and their employability as many of these skills are extremely important both for their future personal lives and careers.

This research has several limitations: namely, it included only students from one country and one faculty at a single university. All other important stakeholders (HEIs, policymakers, businesses and teachers) were excluded from the research. Second, the sample was rather small as it amounted to only 103 respondents. Future research could focus on other stakeholders, or the analysis of existing micro-credentials offered by HEIs, either within one educational system or between different European or global tertiary education providers.

The research has several practical implications for the European HEIs in general and particularly for the university where the respondents currently study. First, it has raised awareness of the skills students thought they needed most or would most likely participate in had they been offered by their HEI. Second, if a M-C aimed at improving a certain skill is perceived by students as one they would not be willing to participate in, but is at the same time is considered very important by most stakeholders, HEIs should strive to popularise it and offer both ordinary courses and M-Cs to help students improve their skills. Third, the research could help in planning educational strategies, especially those that are related to the development and implementation of M-Cs. These strategies should focus on enhancing students' academic skills for graduating within a reasonable time frame and skills needed for entering the workforce with a competitive edge.

This study has several theoretical implications as it indirectly addresses the completion of undergraduate studies in the context of the increased interest in M-Cs in the EU. M-Cs can be seen as an alternative or supplementary form of acquiring skills needed for the completion of studies within a reasonable time frame.

# Navigating micro-credentials: An analysis of student needs...

Future research could include other important stakeholders, as their perspectives would provide a more comprehensive understanding of the effectiveness and applicability of M-Cs in HEIs, both related to the completion of studies and to upskilling, reskilling and acquiring new skills. Once some of the above-mentioned M-Cs have been introduced at the Faculty of Management, University of Primorska, a longitudinal study could be implemented to track their long-term effects on students' academic success.

The appendix is available in the online version of the journal.

## References

- Abdelrahman, R. M. (2020). Metacognitive awareness and academic motivation and their impact on academic achievement of Ajman University students. *Heliyon*, 6(9), e04192. <https://doi.org/10.1016/j.heliyon.2020.e04192>
- Adams, R. V., & Blair, E. (2019). Impact of time management behaviors on undergraduate engineering students' performance. *SAGE Open*, 9(1). <https://doi.org/10.1177/2158244018824506>
- Amran, M., Kutty, F., & Surat, S. (2019). Creative problem-solving (CPS) skills among university students. *Creative Education*, 10(12), 3049–3058. <https://doi.org/10.4236/ce.2019.1012229>
- Brown, M., & Mhichil, M. N. C. (2022). Unboxing micro-credentials: An inside, upside and downside view. *Culture and Education*, 34(2), 938–973. <https://doi.org/10.1080/11356405.2022.2102229>
- Brown, M., Mhichil, M. N. G., Beirne, E., & Mac Lochlainn, C. (2021). The global micro-credential landscape: Charting a new credential ecology for lifelong learning. *Journal of Learning for Development*, 8(2), 228–254. <https://doi.org/10.56059/j4d.v8i2.525>
- Cadiz-Gabejan, A. M., & Takenaka, M. J. C. (2021). Students' computer literacy and academic performance. *Journal of World Englishes and Educational Practices*, 3(6), 29–42. <https://doi.org/10.32996/jweep.2021.3.6.4>
- Council of the European Union. (2022). Council recommendation on a European approach to micro-credentials for lifelong learning and employability. *Official Journal of the European Union*. <https://www.europeansources.info/record/council-recommendation-on-a-european-approach-to-micro-credentials-for-lifelong-learning-and-employability/>
- Do, H., & Nguyen, G. N. (2023). Investigation of attitudes about teamwork: University student predictors. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4355010>
- Doran, L. (2017). *Are microcredentials a fad or the future?* InsideSources. <https://www.insidesources.com/microcredentials-fad-future/>
- European Commission (2020a). Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions. Digital Education Action Plan 2021–2027. *Resetting education and training for the digital age*. <https://eur-lex.europa.eu/legalcontent/EN/ALL/?uri=CELEX:52020DC0624>
- European Commission, Directorate-General for Education, Youth, Sport and Culture (2020b). Shapiro Futures, H., Andersen, T., & Nedergaard Larsen, K., *A European approach to micro-credentials: Output of the micro-credentials higher education consultation group – Final report*. Publications Office of the European Union. <https://data.europa.eu/doi/10.2766/30863>
- Fisher, R. M., & Leder, H. (2022). An assessment of micro-credentials in New Zealand vocational education. *International Journal of Training Research*, 20(1), 232–247. <https://doi.org/10.1080/14480220.2021.2018018>
- Futures, H. S. H., Andersen, T., & Larsen, K. N. (2020). *A European approach to micro-credentials. Annex 2. Institutional incentives to develop and offer micro-credentials in the EU*. Publications Office of the European Union. <https://doi.org/10.2766/968134>
- Grieve, R., Woodley, J., Hunt, S. E., & McKay, A. (2021). Student fears of oral presentations and public speaking in higher education: A qualitative survey. *Journal of Further and Higher Education*, 45(9), 1281–1293. <https://doi.org/10.1080/0309877X.2021.1948509>
- Ha, N. T. N., Spittle, M., Watt, A., & Van Dyke, N. (2023). A systematic literature review of micro-credentials in higher education: A non-zero-sum game. *Higher Education Research & Development*, 42(6), 1527–1548. <https://doi.org/10.1080/07294360.2022.2146061>
- Kalelioglu, F., & Gulbahar, Y. (2014). The effects of teaching programming via scratch on problem-solving skills: A discussion from learners' perspective. *Informatics in Education*, 13, 33–50.
- Majeed, B. (2021). The skill of making a decision and its relationship with academic achievement among students. *International Journal of Recent Contributions from Engineering Science & IT (IJES)*, 9(4), 77–89. <https://doi.org/10.3991/ijes.v9i4.26363>
- Maloney, E. J., & Kim, J. (2019). How universities can avoid learning innovation theatre. *Inside Higher Education*. <https://www.insidehighered.com/digital-learning/blogs/technology-and-learning/how-universities-can-avoid-learning-innovation>
- McGreal, R., & Olcott, D. (2022). A strategic reset: Micro-credentials for higher education leaders. *Smart Learning Environment*, 9. <https://doi.org/10.1186/s40561-022-00190-1>
- Mhichil, M. N. G., Oliver, B., Lochlainn, C. M., & Brown, M. (2023). A snapshot in time: The next new normal and micro-credentials. *International Journal of Education and Technology in Higher Education*, 20(44), 1–5. <https://doi.org/10.1186/s41239-023-00409-2>
- Nor, H. M., & Sihes, A. (2021). Critical thinking skills in education: A systematic literature review. *International Journal of Research in Business and Social Science*, 11, 11529. <https://doi.org/10.6007/IJARBS/v11-i11/11529>
- OECD. (2023). Micro-credentials for lifelong learning and employability: Uses and possibilities. *OECD Education Policy Perspectives*, 66. OECD Publishing. <https://doi.org/10.1787/9c4b7b68-en>
- OECD. (2021). Micro-credential innovations in higher education: Who, what and why? *OECD Education Policy Perspectives*, 39. <https://doi.org/10.1787/f14ef041-en>
- OECD. (2019). *OECD Future of Education and Skills 2030: Conceptual learning framework: Skills for 2030*. [https://www.oecd.org/education/2030-project/teaching-and-learning/learning/skills/Skills\\_for\\_2030\\_concept\\_note.pdf](https://www.oecd.org/education/2030-project/teaching-and-learning/learning/skills/Skills_for_2030_concept_note.pdf)
- Oliver, B. (2019). *Making micro-credentials work for learners, employers and providers*. <https://www.assuringgraduatecapabilities.com/uploads/4/5/0/5/45053363/making-microcredentials-work-oliver-deakin-2019.pdf>

Ralston, S. J. (2021). Higher education's micro-credentialing craze: A postdigital-Deweyan critique. *Postdigital Science and Education*, 3, 83–101. <https://doi.org/10.1007/s42438-020-00121-8>

Scherer, R., Siddiq, F., & Sánchez-Scherer, B. (2021). Some evidence on the cognitive benefits of learning to code. *Frontiers in Psychology*, 12, 559424. <https://doi.org/10.3389/fpsyg.2021.559424>

Shah, A., Seyda, Z., & Naseer, S. (2020). University students' communication skills as a determinant of academic achievement. *SJESR*, 3(2), 107–114. [https://doi.org/10.36902/sjesrvol3-iss2-2020\(107-114\)](https://doi.org/10.36902/sjesrvol3-iss2-2020(107-114))

Stan, M. (2021). Self-management skills and student achievement: A pilot study. *LUMEN Proceedings*, 16, 490–506. <https://doi.org/10.18662/lumproc/atee2020/34>

Steinmayr, R., Weidinger, A. F., Schwinger, M., & Spinath, B. (2019). The importance of students' motivation for their academic achievement: Replicating and extending previous findings. *Frontiers in Psychology*, 10, 1730. <https://doi.org/10.3389/fpsyg.2019.01730>

Tamoliune, G., Greenspon, R., Tereseviciene, M., Volungeviciene, A., Trepule, E., & Dauksiene, E. (2023). Exploring the potential of micro-credentials: A systematic literature review. *Frontiers in Education*, 7, 1–15. <https://doi.org/10.3389/educ.2022.1006811>

Taylor, K. A., Mesmer-Magnus, J., & Burns, T. M. (2008). Teaching the art of negotiation: Improving students' negotiating confidence and perceptions of effectiveness. *Journal of Education for Business*, 83(3), 135–140. <https://doi.org/10.3200/JOEB.83.3.135-140>

Uaikhanova, M., Zeinulina, A., Pshembayev, M., & Anesova, A. (2022). Developing leadership skills in university students. *Cogent Education*, 9(1), 1–12. <https://doi.org/10.1080/2331186X.2022.2143035>

Wheelahlan, L., & Moodie, G. (2021). Analysing micro-credentials in higher education: A Bernsteinian analysis. *Journal of Curriculum Studies*, 53(2), 212–228. <https://doi.org/10.1080/00220272.2021.1887358>

Woods, K., & Woods, J. A. (2021). Less is more: Exploring the value of micro-credentials within a graduate program. *The Journal of Continuing Higher Education*, 71(2), 215–223. <https://doi.org/10.1080/07377363.2021.1966923>

WEF. (2023). *Future of jobs report 2023*. World Economic Forum. [https://www3.weforum.org/docs/WEF\\_Future\\_of\\_Jobs\\_2023.pdf](https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf)

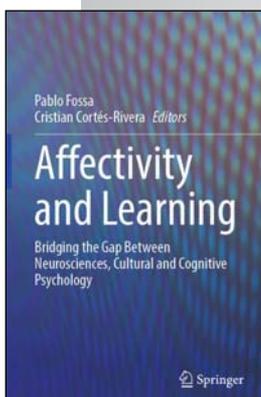
Varadarajan, S., Koh, J. H. L., & Daniel, B. K. (2023). A systematic review of the opportunities and challenges of micro-credentials for multiple stakeholders: learners, employers, higher education institutions and government. *International Journal of Education Technology in Higher Education*, 20(13), 1–24. <https://doi.org/10.1186/s41239-023-00381-x>

Yang, J., & Zhao, X. (2021). The effect of creative thinking on academic performance: Mechanisms, heterogeneity, and implication. *Thinking Skills and Creativity*, 40, 100831. <https://doi.org/10.1016/j.tsc.2021.100831>

Zhang, J., & West, R. E. (2020). Designing microlearning instruction for professional development through a competency-based approach. *TechTrends*, 64(2), 310–318. <https://doi.org/10.1007/s11528-019-00449-4>

Igor Rižnar, assoc. prof. dr., is a lecturer in Business English at the Faculty of Management, University of Primorska in Koper. He received his doctoral degree from the Faculty of Arts of the University of Ljubljana. His research interests include language management strategies and small and medium-sized enterprises, English for specific purposes, translation and localization, sustainable e-learning/teaching and pseudo profound discourse.

## WE RECOMMEND



**Pablo Fossa, Cristian Cortés-Rivera (Eds.)**

***Affectivity and Learning. Bridging the Gap Between Neurosciences, Cultural and Cognitive Psychology***

This book presents an interdisciplinary approach to the study of affectivity and human learning by bridging the gap between neuroscience, cultural and cognitive psychology. It brings together studies that go beyond the focus on cognitive-intellectual variables involved in learning processes and incorporate the study of the role played by affectivity and emotions in learning not only at educational settings but in all processes of transformation and human development, thus presenting affectivity as a catalyst and mediator of all daily learning processes.

Chapters brought together in this contributed volume present both theoretical contributions and results of empirical research from different disciplines, such as neuroscience, cognitive psychology, cultural psychology, educational psychology, developmental psychology and philosophy, and are grouped into five thematic sections. The first part of the book brings together chapters discussing different aspects of the role played by affectivity in learning processes from the perspectives of

cultural, educational and developmental psychology. The second part is dedicated to the role of affectivity for teachers during their training as educators and during their pedagogical practice in diverse contexts. The third part focuses on the relationship between affectivity and learning from a neuroscientific point of view. The fourth part discusses affectivity and learning in therapeutic and clinical contexts. Finally, the fifth part brings together chapters about affectivity and learning in everyday life.

Date of publication: July, 2023

Publisher: Springer Cham

Source of the description: <https://link.springer.com/book/10.1007/978-3-031-31709-5#about-this-book>

# e-mentor

## FOR THE AUTHORS

**“E-mentor” is the academic journal included in the current Ministry of Education and Science journal list. The authors of scientific peer-reviewed paper published in “e-mentor” gain 140 points.**

## “E-MENTOR” JOURNAL – WWW.E-MENTOR.EDU.PL

**Publishers: SGH Warsaw School of Economics and Foundation for the Promotion and Accreditation of Economic Education  
Editor’s office: al. Niepodległości 162/150, 02-554 Warsaw, Poland, phone +4822 5647831, e-mail: redakcja@e-mentor.edu.pl**

The journal is being published since 2003 in electronic (online and pdf) and printed form. All the scientific articles undergo the peer-review process by the experts in the corresponding areas of knowledge. We publish the list of the reviewers once a year, usually in the last volume. Resulting from our internationalization efforts, since 2017 two out of five issues every year are published in English.

## PUBLISHING POLICIES

“E-mentor” journal is registered in the Crossref database, and every article published gets an individual DOI. Our journal is also indexed in the ESCI Web of Science database, as well as CEJSH, EBSCO, BazEkon, CEEOL, and EuroPub. It is included on POL-index and Index Copernicus Journals Master List. Since the first issue of “e-mentor,” we apply the open access policy. Publishing in “e-mentor” is free of charge. Every submitted article undergoes a double-blind peer-review procedure. Such practices as plagiarism, ghost-writing, and guest writing are unacceptable. Every scientific paper must be the original, not previously published work. It cannot infringe the third parties’ copyright and may not be the subject of the editorial procedure elsewhere at the same time.

## ARTICLES’ PROFILE AND SCOPE

We accept original scientific papers (which must successfully pass the review process), book reviews, conference reports, and feuillets. The thematic scope of the journal covers new teaching methods and programs in all forms of education throughout the lifespan and the latest trends in management. We also publish papers concerning the use of new technologies in education and business and the role of those technologies as the change factor.

## AUTHOR GUIDELINES

The manuscript submitted for publishing in “e-mentor” should not exceed 35–40 thousand characters, including spaces, conform to the APA style for references and in-text citations. For the English volumes, the author(s) should submit the paper written in American English followed by the abstract and at least five keywords. For Polish issues along with the manuscript, the abstracts in Polish and English should be provided. Upon acceptance, please supply figures/graphics/images in at least 300 dpi. Please remember that indicating the source of the graphics or data is compulsory.

Detailed instructions for authors and the article template are available at:

[http://www.e-mentor.edu.pl/for\\_authors.php](http://www.e-mentor.edu.pl/for_authors.php)

Authors retain the copyright of their work, with first publication rights granted to the “e-mentor” journal. Reprinting any article or its part is possible under permission only. The editorial office reserves the right to make necessary changes to the materials qualified for publication.



# SGH

Warsaw School  
of Economics



## SGH shapes leaders

We offer full-time studies in English

### First-cycle programmes:

- Global Business, Finance and Governance
- International Economics
- Management
- Quantitative Methods in Economics and Information Systems

### Second-cycle programmes:

- Advanced Analytics – Big Data
- Finance and Accounting with ACCA Qualification
- Global Business, Finance and Governance
- International Business

[www.sgh.waw.pl/admission](http://www.sgh.waw.pl/admission)

