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Table of Contents

Academic Research Papers

Academic Research Papers

Knowledge Risk Management in Corporate Training Evaluation. The Knowledge Risk Training Evaluation Model (KRTEM)

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Abstract

The aim of this paper is to present the development of the Knowledge Risk Training Evaluation Model (KRTEM), to date one of the few models including risk in training evaluation. A review of the best known and most applied training evaluation models provided support for the construction of KRTEM, that in its final formulation includes five evaluation steps, among which the fifth is dedicated to the measurement of knowledge risks that could compromise training effectiveness, exposing the organisation to possible related damages. The KRTEM is still in its theoretical formulation, to make considerations on its effectiveness must be referred to its application on training programmes of organisations of any type and size.

Keywords – Training evaluation; knowledge risks; training evaluation models; Knowledge Risk Training Evaluation Model (KRTEM).

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1 Introduction

There is broad consensus in the literature that adequately trained human resources can actively contribute to the improvement of both job and organisational performance (Dabale, Jagero, & Nyauchi, 2014; Elnaga & Imran, 2013; Farooq & Khan, 2011; Nkpurukwe, Ozah, & Wali, 2020; Obi-Anike & Ekwe, 2014; Russell, Terborg, & Powers, 1985). Given the positive relationship between human resource training and organisational performace, it is crucial for organisations to asseverate the effectiveness of training, even considering the costs this activity implies. Training evaluation can be a useful activity for assessing the effectiveness and cost-effectiveness of training, although it is often underestimated or poorly applied (Wang & Wilcox, 2006). Nevertheless, there are several models for training evaluation that, over the years, scholars from all over the world have formulated and applied. Among these, the best known and most applied is certainly Donald Kirkpatrick's Four Levels Model (Kirkpatrick, D. L., 1959), a model that has inspired most of the scientific production on training evaluation for decades since the late 1950s (Smidt, Balandin, Sigafoos, & Reed, 2009). Reaction, learning, behaviour change, and organisational results are the levels of evaluation that over time have remained the cornerstone of the evaluation process of so many models that have been guided by Kirkpatrick's work (Tamkin, Yarnall, & Kerrin, 2002), either by updating it to adapt it to the functioning of modern organisations (Kirkpatrick, J. D. & Kirkpatrick, W. K., 2016), or by incorporating new levels of evaluation for improving the accuracy of measuring training outcomes (Hamblin, 1974), measuring the social impact of training (Kaufman, 1981), training design (Brinkerhoff, 1988), or the cost-effectiveness of training investments (Phillips, 1994).

One issue is still largely unexplored in training evaluation research, namely the risks to which training process may be exposed. Therefore, it becomes timely to include risks in training evaluation as well, so that training could be preserved from the potentially negative effects of various types of risks. To the best of author's knowledge, to date, training evaluation models explicitly including risks are scarce (Borgia, 2023) and do not precisely specify types of risk to which training could be exposed (Jasson & Govender, 2017), or only concern specific training programmes adopted by few types of organisations (Borgia & La Torre, 2022). As a knowledge-based activity, training may be exposed, to a greater extent, to a particular type of risks related to knowledge management, namely knowledge risks, "[...] a measure of the probability and severity of adverse effects of any activities engaging or related somehow to knowledge that can affect the functioning of an organisation on any level" (Durst & Zieba, 2019, p. 2). Thus, a model that incorporates knowledge risks into the evaluation process could be a valid support in protecting training from this type of risk strongly related to knowledge management and hence capable of compromising the effectiveness of training in a variety of manners, such as hindering

the efficient design and performance of the training event, or disrupting the training transfer process (Borgia, 2023).

This paper seeks to answer this call by proposing the Knowledge Risk Training Evaluation Model (KRTEM), a model for corporate training evaluation including a level specifically dedicated to measuring knowledge risks to which the training process may be exposed. The KRTEM was presented in a previous publication in Italian (Borgia, 2023) and was built by revising the best known and applied training evaluation models, from which some levels have been borrowed, and to which a level specifically dedicated to knowledge risks was added. The present work holds more than an implication. In its theoretical level, it contributes to the strand of training evaluation models that include risk yet in its infancy. On a practical level, it could be employed by firms seeking to protect their investments in training from the threat of knowledge risks.

The remainder of the paper proceeds with a review of the literature on training evaluation models (Section 2). In Section 3, the methodology KRTEM was structured with is explored, while the fourth section presents the KRTEM, its levels of evaluation, and some indications for its application. The paper ends with Section 5, providing the general conclusions of the work.

2 Literature review

2.1 Past, present and future of training evaluation models

The hierarchical model proposed by Donald Kirkpatrick at the end of the 1950s, the "Four Levels Model", is one of the best known, most criticised, but also most applied models for corporate training evaluation. Kirkpatrick's model states that training evaluation is based on four levels: 1. reaction, 2. learning, 3. behaviour change, 4. organisational results (Kirkpatrick, D. L., 1959, 1996; Kirkpatrick, D. L. & Kirkpatrick, J. D., 2006). The first level aims to assess trainees' reactions to training event. Questionnaires and similar methods are used to assess the level of satisfaction with the programme, trainers and training environment (Kirkpatrick, D. L., 1959, 1996; Kirkpatrick, D.,L. & Kirkpatrick, J.D., 2006). At the learning level, training effectiveness is evaluated in terms of amount of knowledge gained. Questionnaires and other similar tools are applied to assess whether trainee's knowledge increased as a result of training programme (Kirkpatrick, D. L., 1959, 1996; Kirkpatrick, D.L., & Kirkpatrick, J.D., 2006). The third level of Kirkpatrick's model is probably the most critical, as it provides an opportunity to examine whether the knowledge and skills acquired through training are transferred to the workplace by participants, and whether this leads to a positive change in behaviour,

with an indirect positive effect on the organisation as a whole (Kirkpatrick, D. L., 1959, 1996; Kirkpatrick, D.L., & Kirkpatrick, J.D., 2006). The fourth level of evaluation, organisational results, aims to assess the 'value for money' of training, i.e. whether training has contributed to measurable improvements in organisational productivity (Kirkpatrick, D. L., 1959, 1996; Kirkpatrick, D.L., & Kirkpatrick, J.D., 2006). Kirkpatrick's model is hierarchical in the sense that there is a progressive order of information and a causal link between the four levels of assessment (Alliger & Janak, 1989). These features were the most criticised of the four-level model. Reio Jr, Rocco, Smith and Chang (2017), for example, pointed out that although the model is easy to apply, the difficulty of implementing the four levels remains. Bates (2004) highlighted three key limitations of the Kirkpatrick model, namely its oversimplification of the reality to be evaluated, the causal link between levels, and the assumption of an increasing importance of information at higher levels. In Cahapay (2021), criticism is made considering the application of the model in higher education evaluation, while in Moreau (2017) in the context of medical education programmes.

In spite of many critiques, Donald Kirkpatrick's model remains one of the most applied for the evaluation of training programmes in organisations of many different types around the world (Alsalamah & Callinan, 2021; Curado & Sousa, 2021; Mohamed & Alias, 2012; Yaqoot, Wan Mohd Noor, & Mohd Isa, 2017). Continuing the work on training evaluation started by Kirkpatrick were his sons, who in 2009 published a training evaluation model known as "The New World Kirkpatrick Model", which is an update of the original Four Levels Model, retaining the four-level structure but adapting it to the changing characteristics of the environment in which organisations organise and deliver their training programmes. (Kirkpatrick, J. D., & Kirkpatrick, W. K., 2016, 2021).

The hierarchical level structure also inspired other training evaluation models, which Tamkin, Yarnall and Kerrin (2002) describe as "Kirkpatrick plus", in that whilst retaining the basis of the four levels, they implemented or modified the original version, by inserting or modifying one or more evaluation levels. From the early 1970s to recent times, a number of training evaluation models have been proposed that derive from the original formulation of the Four Levels Model. Hamblin's (1974) five-level approach is one of the first of these models, borrowing the initial three levels from the Four Levels Model, and introducing the "organisation" level, in which beneficial effects of the increase in job performance resulting from training are evaluated, and the "ultimate value" level, which is responsible for evaluating the financial effects of training (Lee & Pershing, 2000). Hamblin's model therefore essentially extends that of Kirkpatrick by splitting the outcome level into two parts (organisational and ultimate value), and by defining more explicitly the hierarchical relationship between the five proposed evaluation levels (Clement, 1982; Tamkin, Yarnall & Kerrin, 2002). The Six-Stage Model was proposed by Brinkerhoff in 1988, and compared to the Four Level Model, it comprised two further levels. A level

dedicated to the evaluation of the training objectives, and a level to the evaluation of the training design. These additional levels had the common purpose of supporting the whole training decision making process (Bassi, 1997; Brinkerhoff, 1988). Kaufman and Keller (1994) developed the Organisational Elements Model (OEM), a training evaluation model which, compared to Kirpatrick's model, introduces two evaluation levels dedicated to the social impact of training (Kaufman, 1981; MacGillis, Hintzen, & Kaufman, 1989). HRD Evaluation Research and Measurement Model is instead the evaluation model proposed by Holton in 1996 (Holton III, 1996, 2005). Holton was one of Kirkpatrick's main critics, so much so that his model was formulated in the belief that the Four Levels Model was not even an evaluation model at all, but merely a "taxonomy of outcomes" (Holton, 1996). Holton argued that a serious implementation of Kirkpatrick's model was needed, so structured his model in order to examine the effects of intervening variables on training outcomes, such as motivation to learn, trainer skills, trainee attitudes, personal characteristics of trainees and trainers, and the transfer of knowledge gained from training (Holton, 1996). Jack and Patricia Phillips' model, although derived from Kirkpatrick's, introduced a new level dedicated to evaluate the "value for money" of training, proposing to measure the "ROI of training", i.e. the return on investment in training (Phillips & Phillips, 2016). The extraordinary success of this model is due to the increasing need to demonstrate that training is a good investment for organisations. Measuring the ROI of training is included as a fifth level to the four levels of Kirkpatrick's model and consists of a cost-benefit analysis of training and ROI calculation (Phillips, 1994, 1996, 2012).

Scholarly work on training evaluation continued to produce new models even in more recent times. Pineda, in 2010, proposed an integrated model for training evaluation, which introduced pedagogical elements with the aim to implement training benefits for subjects involved and for the organization as a whole (Pineda, 2010). The Participatory Training Evaluation Method (PATEM) proposed by Kuzmin presented an evaluation process based on the active involvement of all the subjects involved, so that evaluation becomes an "experience" to learn from (Kuzmin, 2012). In 2012, Passmore and Velez contributed to research on training evaluation with the SOAP-M evaluation model. SOAP-M proposed five levels of evaluation, namely: 1. Self, 2. Other, 3. Performance, 4. Potential, 5. Meta-analysis (Passmore & Velez, 2012). The first three levels come from the tradition of hierarchical models and include self-assessment. At the Self level, evaluation by trainers and peers at the Others level, and assessment of progress following training at the Achievements level (Passmore & Velez, 2012). Levels 3 and 4 are the novelty of the SOAP-M model, as they involve the evaluation of training potential and the use of meta-analysis for data analysis in the evaluation process, respectively (Passmore & Velez, 2012). Jasson and Govender proposed, in 2017, the Training ROI and Risk Measurement Model, which adds to the original Kirkpatrick model an evaluation level for measuring the ROI training, and a further

level specifically dedicated to the measurement of risks which could affect training effectiveness as they hinder the training transfer process (Jasson & Govender, 2017). This model was the first to introduce risk into training evaluation, distinguishing itself from all other models inspired by Kirkpatrick's Four Levels Model. A few years later, Borgia and La Torre (2022) also considered risk in training evaluation, proposing the AML/CFT Training Evaluation Model, which provides a specific level for measuring knowledge risks that could affect anti-money laundering training programmes in banks.

This paper belongs to the strand on training evaluation models deriving from Kirkpatrick's Four Levels Model, in particular on training involving the measurement of risks in the evaluation process. The KRTEM is proposed, which can be applied by all organizations, regardless of type and size, interested in evaluating their training interventions considering a particular type of risk connected to knowledge management, i.e. knowledge risks.

3 Methodology

The KRTEM follows a "mixed" approach to evaluation (Borgia, 2023):

- blended, concerning the feeding of the model through data and information of different nature and coming from different sources (Borgia, 2023);
- based on the training stakeholders, i.e. an evaluation that involves all those interested in the training, regardless of the role played in the process (Borgia, 2023);
- systemic, in the sense that the evaluation is considered not an external process but integrated into the organization (Borgia, 2023);
- based on predictions, in the sense that the evaluation takes place before the training, to allow the evaluator to formulate hypotheses on the effectiveness of the training, which are subsequently compared with the actual results, to have an even more accurate picture of the effectiveness and benefits obtained from training (Borgia, 2023). The forerunner of this approach to training evaluation was Basarab (2010), who proposed the predictive evaluation approach, according to which the evaluation process affects not only the new training programme but also the past ones, so that predictions can be made about the value of training to the company by comparing it with past training experiences;
- based on ethical principles, in the sense that the evaluation is in line with ethical principles, as it provides a level dedicated to measuring knowledge risks, potentially very harmful for the entire organization (Borgia, 2023).

The KRTEM was developed by reviewing some of the most well-known and applied training evaluation models, and borrowing from these the levels considered most suitable for effective and efficient evaluation, and in step with the increasingly complex functioning of modern organizations (Borgia, 2023). Table 1 summarizes the KRTEM construction process, representing its formulation in five evaluation levels: 1. Context, 2. Training, 3. Transfer, 4. Convenience, 5. Knowledge risk Management.

Table 1 – KRTEM composition criterion

KRTEM Evaluation Steps	KRTEM Steps' Goals	References
1. Context	Evaluation of the context in which the training takes place to verify whether it supports the success of training activities	Warr, Bird & Rackham, 1970; Tessmer & Richey, 1997
2. Training	Evaluation of training effectiveness in terms of new knowledge and skills acquired following the training intervention	Kirkpatrick. J. D., & Kirpatrick, W. K., 2016
3. Transfer	Evaluation of training effectiveness in terms of transfer to work environment of the knowledge learned and skills acquired through the programme; assessment of changes in trainees' work behavior resulting from training	Kirkpatrick, J. D., & Kirpatrick, W. K., 2016
4. Convenience	Cost-benefit analysis of training, calculation of training ROI	Phillips, 1994
5. Knowledge risk management	Measurement of the knowledge risks to which the training process could be exposed in all its phases, from planning to delivery, to training transfer to the work environment	Jasson & Govender, 2017; Borgia & La Torre, 2022.

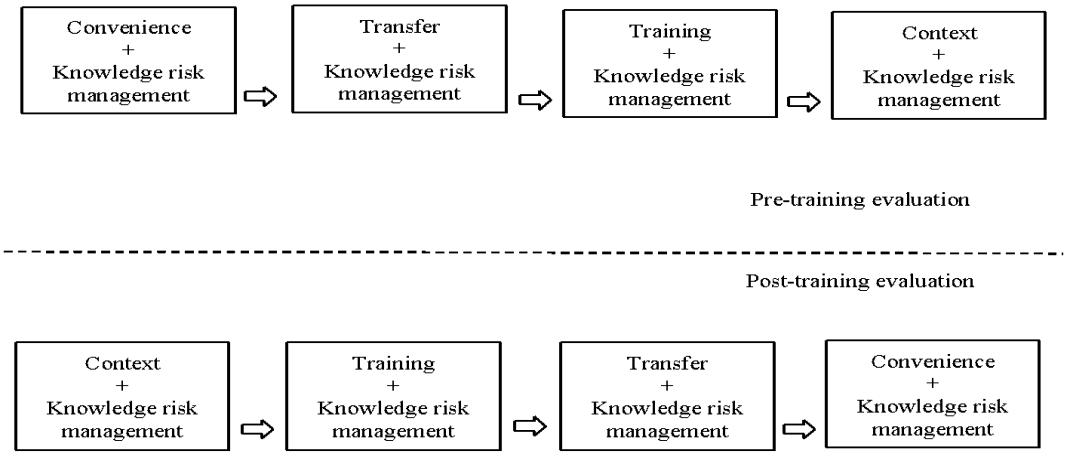
Source: our elaboration from Borgia (2023)

4 Knowledge Risk Training Evaluation Model (KRTEM)

The KRTEM is a training evaluation model that proposes risk measurement in the evaluation process particularly of knowledge risks, since training is a knowledge-based activity, and thus most likely exposed to this category of risks. The structure of the KRTEM includes five steps of evaluation: context, training, transfer, convenience, knowledge risk managemnt, which are carried out, in two different moments, following the reverse order (convenience, transfer, training, context) – in the pre-assessment training – and following the original order – in the post-training evaluation – (Borgia, 2023). These two distinct moments of evaluation should allow to make a pre-evaluation of the training

through an estimation of training expected results (starting from the convenience in terms of investment in training), which evaluators can then compare with the actual results obtained from the post-training evaluation, obtaining a more solid and complete evaluation (Borgia, 2023). The KRTEM also provides that the step dedicated to the management of knowledge risks is transversal to all the other steps of the model: the measurement of these risks takes place at the same time as each assessment step, in order to ensure that these risks are measured with reference to the training process as a whole (Borgia, 2023). Figure 1 below shows a schematic representation of the evaluation process proposed by KRTEM, as well as the relationship between its evaluation steps.

Figure 1 – Training evaluation according to KRTEM



Source: adapted from Borgia (2023, p. 128)

Table 2 also shows a schematization of the KRTEM with particular reference to its evaluation criteria, and the tools that organizations can use if they decide to apply this model for evaluating their training programs.

Table 2 – KRTEM application

KRTEM Steps	Training Evaluation Criteria	Training Evaluation Tools
1. Context	Do orientation, teaching and transfer contexts favour or hinder training?	Questionnaires, checklists. Some examples of possible items: - The classroom environment helped me learn - The course content was easy to understand
2. Training	How much and what knowledge, skills, values and behaviours have been taken from the training? Are such knowledge and skills capable of developing positive attitudes and behaviour positive attitudes and behaviour in the trainee towards of improved job performance?	Questionnaires, interviews. Some examples of possible questions: - What are the main concepts I have learnt from the training programme? - I think it will be useful to apply what I have learnt from the programme in the performance of my work tasks.
3. Transfer	The knowledge and skills acquired from training are transferred to the work environment by improving work performance? Does the transfer of training positively affect work and organisational performance?	Checklists, questionnaires, interviews. Some examples of possible items: - I am able to apply in my work what I have learnt from the training programme - I successfully applied in my work what I learnt from the training programme
4. Convenience	Do the benefits of the training outweigh the costs of its provision?	Cost-benefit analysis and training ROI calculation
5. Knowledge risk management	Is the training environment conducive to the emergence of knowledge risks? Is the training planning conducive to the emergence of knowledge risks? Does the training planning facilitate the occurrence of knowledge risks? Does the delivery of training facilitate the occurrence of knowledge risks? Are the behaviours of those involved in the training due to knowledge risk behaviours?	Checklists, questionnaires, interviews. Some examples of possible items: - I tend to accumulate information in case I might need it - One month after training, I only partially remember the content of the programme

Source: adapted from Borgia (2023, pp. 131-134)

5 Conclusions

The current paper was aimed at presenting the KRTEM, a training evaluation model belonging to the category of hierarchical models organised on evaluation levels/steps, and inspired by the structure of the most well-known and applied training evaluation models proposed, over the years, by scholars and practitioners worldwide. The KRTEM differs from the previous models in that it introduces an

evaluation level specifically dedicated to measuring the possible knowledge risks to which the training process may be exposed at each stage. Knowledge risks are potentially very dangerous risks for organisational training activities, since they concern knowledge management, the core of the training activity itself.

This paper seeks both to contribute to the research strand on training evaluation, by proposing a new model, and to diffuse the characteristics of KRTEM, in order to offer the possibility for human resource management professionals to defend the organisation's investment in training from the threat of knowledge risks. This work is not without limitations, as it essentially concerns the purely theoretical formulation of KRTEM. It is therefore desirable to follow-up on it with a practical application in order to test its effectiveness as a model in its entirety and eventually in very different operational contexts.

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Strategic ESG Reporting: Advancing Operational Risk Management in Europe's Innovative Banking Sector[1]

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Abstract

Sustainability concerns extend beyond traditional businesses, enveloping the banking sector where stakeholders exert considerable pressure for robust environmental, social, and governance (ESG) disclosures. This study delves into the impact of ESG reporting on the operational risk management within European banks. By scrutinizing ESG disclosure practices across 192 EU27-listed banks from 2009 to 2019, the investigation reveals a tangible influence of ESG practices on operational risk. The findings underscore the value of enhanced transparency and accountability, indicating that diligent ESG reporting can lead to marked improvements in managing banking risks.

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1 Introduction

The concept of CSR in the financial sector refers not only to the responsibility of companies for the effect that their actions have on stakeholders, but also to the role of companies as financial intermediaries (Prior & Argandoña, 2009), especially after the financial shock that occurred with the sub-prime mortgage crisis which led to calls for responsible conduct in the financial sector (Cornett, Erhemjamts, & Tehranian, 2016).

In the exercise of their institutional activity, as is known, banks are exposed to different types of risk: one of these is the Operational Risk represented by the possibility that the financial activity is subject to fluctuations in value that arise during the normal operations of a bank.

Banks provide financial services (Greenbaum & Thakor, 2007) by means of operational and financial activities that require the production and processing of information and the connection between them.

At the corporate level, sustainability is usually represented by characteristics of environmental, social, and governance practices that directly influence the global sustainability aspect (Semenova & Hassel, 2015; Friede, Busch, & Bassen, 2015). Otherwise, banks as financial intermediaries cannot directly influence sustainable development, yet, in their financial services and through banking operations, they can take into account the environmental, social, and governance characteristics and policies of companies and organizations in political internal and in the decisions related to them, including in financing decisions. Unfortunately, banking risk management does not always serve to obtain satisfactory results, as macroeconomic factors interact with the economic system through their balance sheets and their operations on the financial markets.

Therefore, to manage risks and organize financing, financial authorities monitor and regulate both individual banks, markets, and the financial system as a whole (Greenbaum & Thakor, 2007). In the econometric models used, it was decided to also include macroeconomic variables to also evaluate the influence of the macroeconomic system.

The contribution is divided as follows: paragraph 2 illustrates the literature that leads to the research hypotheses; paragraph 3 reports the empirical analysis in terms of the survey methodology used and the sample under examination; section 4 reports the main findings and offers a discussion of the findings and concluding remarks.

2 Literature review and hypothesis development

2.1 CSR disclosure and bank risk

Since the sub-prime mortgage financial crisis, financial institutions, in particular banks, have received strong pressure as they are called upon to recognize and observe their obligations towards society (Matten, 2006; Money & Schepers, 2007; Gill, 2008; Grove et al., 2011).

According to the World Bank, "corporate social responsibility is the commitment of businesses to contribute to sustainable economic development by working with employees, their families, the local community and society at large to improve their lives in positive ways for the business and for development" (Starks, 2009, p. 465).

From a strictly corporate point of view, CSR can have both financial and strategic advantages as corporate engagement in social activities develops greater trust from stakeholders, thus offering competitive advantages (Aguilera, Williams, Conley, & Rupp, 2006; Money & Schepers, 2007; Gill, 2008).

The concept of CSR in the financial sector refers not only to the responsibility of companies for the effect that their actions have on stakeholders, but also to the role of companies as financial intermediaries (Prior & Argandoña, 2009). De la Cuesta-González, Muñoz-Torres, and Fernández-Izquierdo (2006) believe that CSR impacts the financial sector in two different ways: firstly in the internal dimension, which involves the implementation of environmentally and socially responsible initiatives within internal management procedures, and secondly in an external dimension, which implies the incorporation of corporate social responsibility into financial intermediation and investments in financial markets. The internal dimension that provides information on CSR in Financial Institutions appears in the "Impact of products and services" section of the supplementary part of the SGR FSS (Global Reporting Initiative, 2023: https://www.globalreporting.org). This dimension of designing and implementing procedures for the assessment and screening of environmental and social risks in operational lines is extremely important as relationships with stakeholders are based on a positive exchange of benefits (Baer & Haase, 2020). For this reason research suggests that reporting on CSR promotes the image of companies and improves their reputation (Gray, Kouhy, & Lavers, 1995; Vanhamme, Lindgreen, Reast, & van Popering, 2012).

Sustainable commitment banking is shown to reduce the risk of business performance being negatively affected by labor disputes, product safety scandals, and consumer fraud (Waddock & Graves, 1997). Therefore, companies with high standards of sustainable operating practices are subject to lower specific risks due to lower variability in cash flows (Salama, Anderson, & Toms, 2011). For this reason,

the bank's corporate strategy and risk management (Mengze & Wei, 2015) should necessarily take CSR into account.

Previous research suggests that sustainable engagement and reporting can influence corporate risks and profitability, as investors increasingly analyze their social behavior as a determinant of investment choice (Simpson & Kohers, 2002; Aguilera, Williams, Conley, & Rupp, 2006) and considering that CSR incorporates multidimensional aspects, it may happen that the effects of one dimension prevail over the effects of the others or even cancel out the effects on the other; therefore, it is useful to have disaggregated data.

It was therefore decided to also use Bloomberg's ESG Disclosure Score both aggregated and disaggregated into its three components: environmental, social, and governance and to analyze their link to banking operational risk (Gambetta, García-Benau, & Zorio-Grima, 2017; Galletta, Goodell, Mazzù, & Paltrinieri, 2023) as it is less discussed than credit risk (Wu & Shen, 2013; Henisz & McGlinch, 2019; Mendiratta, Varsani, & Giese, 2021; Gaganis, Pasiouras, & Tasiou, 2023) and liquidity risk (Gambetta, García-Benau, & Zorio-Grima, 2017; Liang, Xue, & Zhang, 2023; Zhao, 2023) despite the relevance of some studies conducted by Perry and de Fontnouvelle (2005) and Fiordelisi, Schwizer, and Soana (2014) which underline that operational risks can lead to significant financial losses caused by a significant capital absorption.

Based on the aspects examined, the following research hypotheses were formulated:

- H1 There is a positive and significant relationship between the disclosure level of the ESG and Operating Income.
- H1a There is a positive and significant relationship between the disclosure level of environmental issues and Operating Income.
- H1b There is a positive and significant relationship between the disclosure level of social issues and Operating Income.
- H1c There is a positive and significant relationship between the disclosure level of governance and Operating Income.

3 Empirical analysis

3.1 Methodology

To test the research hypotheses, we examine the impact of the overall score developed by Bloomberg as a proxy for ESG disclosure and also a set of macroeconomic and bank-specific variables on operating income.

The analysis is conducted by performing multivariate regressions with panel data over the time horizon 2009-2019. In order to better capture the non-financial effect of reporting activities, we delayed the independent variables of the ESG score (both aggregated and split) by 1 year. The least squared ordinary model (OLS) is supported by the results of the collinearity (see Appendix A) and heteroskedasticity tests (for further details, please see Appendix A); in particular, the variance inflation factor (VIF) was used to verify the multicollinearity and the With Test to verify that the model was not ruined by heteroskedasticity. In order to improve the accuracy and consistency of the estimates, the Hausman Test is carried out to support the choice between panel analysis with fixed or random effects and the analysis is performed with robust standard errors. The main independent variables are delayed by a period, in order to limit the problems of endogeneity.

$$ln\_OI_{it} = \beta_0 + \beta_1 SGR_{it} + \beta_2 NIM_{it} + \beta_3 lnSIZE_{it} + \beta_4 COV_{it} + \beta_5 CR_{it} + \beta_6 INFL_{it} + \beta_7 GDP_{it} + \beta_8 UNE_{it} + \\ + \beta_9 ESG_{it-1} + \varepsilon_{it} \quad (1)$$

$$ln\_OI_{it} = \beta_0 + \beta_1 SGR_{it} + \beta_2 NIM_{it} + \beta_3 lnSIZE_{it} + \beta_4 COV_{it} + \beta_5 CR_{it} + \beta_6 INFL_{it} + \beta_7 GDP_{it} + \beta_8 UNE_{it} + \\ + \beta_9 ED_{it-1} + \beta_{10} SD_{it-1} + \beta_{11} GD_{it-1} + \varepsilon_{it} \quad (2)$$

3.2 Regression variables

The variable under study is operational risk and is difficult to define due to its multidimensional nature (Sturm, 2013). However, Operational Banking Risk is chosen to measure through Operating Income (Gambetta, García-Benau, & Zorio-Grima, 2017).

3.2.1 Control variables

The SGR (Sustainability Growth Rate) variable is used to analyze the sustainability of the bank's growth without resorting to debt; the NIM (Net Interest Margin) variable represents the bank's profit margin (Salas & Saurina, 2002); the variable lnSIZE (ln_Total Assets) represents the size of the bank

(Bussoli, Conca, Gigante, & Madaro, 2016); the variable COV (Loan loss reserves/Gross Loans) assesses the extent to which the banking sustainability relating to the losses of loans originated in the exercise of credit; and the variable CR (Total Capital Ratio) represents the capital adequacy coefficient (Bussoli, Conca, Gigante, & Madaro, 2016).

3.2.2 Macroeconomic variables

For the macrosystemic aspect it was decided to use the variable GDP (Gross Domestic Product) since it is one of the primary indicators used to measure the health of a country's economy (Jiménez & Saurina, 2005; Rinaldi & Sanchis-Arellano, 2006; Boudriga, Boulila Taktak, & Jellouli, 2009; Bofondi & Ropele, 2011; Nkusu, 2011; Klein, 2013; Škarica, 2014; Bussoli, Conca, Gigante, & Madaro, 2016; Salvi, Bussoli, Conca, & Gigante, 2018); the UNE variable (unemployment) represents the unemployment rate of the countries analyzed (Bofondi & Ropele, 2011; Nkusu, 2011; Klein, 2013; Makri, Tsagkanos, & Bellas, 2014; Škarica, 2014) and the variable INFL (Inflation) represents the inflation rate of each Member State (Rinaldi & Sanchis-Arellano, 2006; Bofondi & Ropele, 2011; Nkusu, 2011; Klein, 2013; Makri, Tsagkanos, & Bellas, 2014; Nkusu, 2011; Škarica, 2014).

3.2.3 Independent variables

It was decided to use an overall score developed by Bloomberg as a proxy for ESG reporting (Gutsche, Schulz, & Gratwohl, 2017).

Given its credibility, this delegation is also commonly applied in business practices.

In addition, it was also decided to divide the ESG disclosure score into its individual components: ESG, to investigate the different weights of the information on the various issues. Bloomberg indicators were preferred because, according to the provider, the score is calculated directly on the basis of information disclosed by the banks.

3.3 Sample

The analysis was conducted on a sample made up of 192 European listed banks considered in the period 2009-2019. The data is annual. The final dataset includes an unbalanced panel of active banks present in the 27 states of the European Union (EU27). Financial data is obtained from the BankFocus database and Bloomberg ESG data.

Tables 1 and 2 report the main descriptive statistics of the variables under study and the correlation analysis. In addition, the VIF test was performed to avoid any multicollinearity problems, while the White Test (White, 1980) for heteroskedasticity (for detailed results, please see Appendix A).

Table 1 – Descriptive statistics (2010–2018)

Variable	Mean	Standard Deviation
ln_OI	6.41	1.65
SGR	4.93	4.95
NIM	0.18	0.02
ln SIZE	9.37	1.82
COV	0.30	0.05
TCR	12.50	7.14
INFL	1.32	1.25
GDP	103.64	10.21
UNE	25.44	14.14
ED	33.24	18.13
SD	44.93	17.14
GD	52.12	17.43
ESGD	36.54	18.88

Source: our elaboration

Table 2 – Correlation Matrix (2009-2019)

Variable	ln_OI	SGR	NIM	ln_SIZE	COV	TCR	INFL	GDP	UNE	ED	SD	GD	ESGD
ln_OI	1												
SGR	-0.124	1											
NIM	-0.788	0.058	1										
ln_SIZE	0.978	-0.124	-0.866	1									
COV	-0.486	-0.033	0.618	-0.541	1								
TCR	0.300	0.024	-0.433	0.357	-0.545	1							
INFL	-0.118	0.090	0.161	-0.143	0.069	-0.009	1						
GDP	-0.018	0.290	-0.136	0.009	-0.139	0.168	0.216	1					
UNE	0.116	-0.281	0.075	0.082	0.148	-0.284	-0.082	-0.431	1				
ED	0.230	-0.147	0.059	0.171	0.071	0.002	-0.011	-0.241	0.229	1			
SD	0.183	-0.032	0.045	0.133	0.041	0.039	-0.012	-0.117	0.284	0.686	1		
GD	0.247	-0.022	0.013	0.201	0.076	-0.057	-0.049	-0.140	0.295	0.555	0.501	1	
ESGD	0.265	-0.098	0.047	0.203	0.065	0.004	-0.036	-0.203	0.302	0.901	0.840	0.761	1

Note. Correlation is significant at the 0.05 level (2-tailed).

Source: our elaboration

3.4 Results

The Pooled OLS model is supported by the results of collinearity and heteroscedasticity analysis. The Collinearity test allowed to exclusion of problems of collinearity between the variables, while the heteroscedasticity problem was resolved through further analyses with robust standard errors. Table 3 illustrates in detail the results deriving from the panel analysis referring to the dependent variable OperatingIncome expressed in natural logarithm. From the results of the Hausman Test, it is decided to consider the Panel model with Fixed Effects. Furthermore, to limit endogeneity problems, a one-year lag period is carried out on the main dependent variables.

Table 3 illustrates in detail the regression coefficients and test statistics, deriving from the panel analysis. Focusing on the results of the ESG Disclosure Score, the empirical analysis reveals a statistically significant positive relationship with operating income. Therefore, the results obtained allow us to state that the research hypothesis H1 is verified.

With particular reference to the economic-financial indicators, there is also a statistically significant positive relationship between operating income and the size of the banks (lnSIZE) – highlighting how the expansion of the size of banking institutions can positively affect operating income. Furthermore, there is a statistically significant positive relationship between the dependent variable and the interest margin (NIM in Table 2), underlining how a greater profit margin achieved by the bank can be associated with an increase in operating income. Regarding macroeconomic variables, there is a direct relationship between inflation and operating income.

The analysis was replicated by breaking up the ESG Disclosure score into the individual components. The evidence reported in Table 4 (with reference to the model with *Fixed effects*) shows a negative relationship between the Social Disclosure Score and operating income. On the contrary, there is a positive relationship between Governance Disclosure and operating income. From the results, we can say that the hypotheses H1a and H1b are not verified, but the hypothesis H1c is verified.

This analysis confirms the statistically significant relationship between inflation and operating income and the bank-specific variables are all significant. In particular, there is a positive impact on operating income in the case of SGR, NIM, lnSIZE and COV. Otherwise, a negative relationship with the Total Capital Ratio.

Table 3 – Regression Model – ln_OI with ESG Disclosure Score (2009-2019)

Pooled OLS ln_OperatingIncome				**Fixed Effect ln_OperatingIncome**				**Random Effect ln_OperatingIncome**			
	coeff.	*p-value*			*coeff.*	*p-value*			*coeff.*	*p-value*	
cost	-1.638	0.000	***	cost	-3.106	0.000	***	cost	-1.893	0.004	***
	(0.587)				*(0.744)*				*(0.658)*		
SGR	0.006	0.000	***	SGR	0.004	0.228		SGR	0.006	0.048	**
	(0.002)				*(0.003)*				*(0.003)*		
NIM	0.956	0.000	***	NIM	0.900	0.000	***	NIM	0.951	0.000	***
	(0.076)				*(0.169)*				*(0.165)*		
lnSIZE	0.858	0.000	***	lnSIZE	0.858	0.000	***	lnSIZE	0.858	0.000	***
	(0.006)				*(0.011)*				*(0.011)*		
COV	0.098	0.000	***	COV	0.115	0.162		COV	0.100	0.244	
	(0.037)				*(0.082)*				*(0.086)*		
CR	-0.003	0.000	***	CR	-0.003	0.147		CR	-0.003	0.086	*
	(0.001)				*(0.002)*				*(0.002)*		
INFL	0.034	0.000	***	INFL	0.071	0.000	***	INFL	0.037	0.000	***
	(0.009)				*(0.020)*				*(0.010)*		
GDP	-0.096	0.435		GDP	0.204	0.188		GDP	-0.043	0.748	
	(0.123)				*(0.54)*				*(0.134)*		
UNE	-0.002	0.104		UNE	0.000	0.856		UNE	-0.001	0.158	
	(0.001)				*(0.001)*				*(0.001)*		
ESG_1	0.002	0.000	***	ESG_1	0.002	0.000	***	ESG_1	0.002	0.000	***
	(0.001)				*(0.001)*				*(0.001)*		
	R^2 Adj	*0.977*									
	Obs	*1608*			*R^2 LSDV*	*0.981*		Hasman: P value = P (χ2(9) > 45.28 = 0.00			
	F(9, 1594)	*7512.25*			*Obs*	*1604*		Sum of residual squares 292.79			
	P value(F)	*0.000*									

Note. The numbers in italics are standard error. Abbreviations: OLS, ordinary least square. Level of significance *10%; **5%; ***1%.

Source: our elaboration

Table 4 – Regression Model – ln_OI with Environmental, Social and Governance Disclosure Scores (2009-2019)

Pooled OLS ln_OperatingIncome				**Fixed Effect ln_OperatingIncome**				**Random Effect ln_OperatingIncome**			
	coeff	*p-value*			*coeff.*	*p-value*			*coeff.*	*p-value*	
cost	-0.9354	0.152		cost	-2.337	0.000	***	cost	-1.504	0.057	*
	(0.65)				*(0.872)*				*(0.791)*		
SGR	0.0114	0.000	***	SGR	0.011	0.003	***	SGR	0.011	0.000	**›
	(0.002)				*(0.003)*				*(0.003)*		
NIM	0.9595	0.000	***	NIM	0.913	0.000	***	NIM	0.949	0.000	**›
	(0.089)				*(0.181)*				*(0.183)*		
lnSIZE	0.8681	0.000	***	lnSIZE	0.867	0.000	***	lnSIZE	0.868	0.000	**›
	(0.007)				*(0.011)*				*(0.011)*		
COV	0.1783	0.000	***	COV	0.214	0.023	**	COV	0.185	0.058	*
	(0.043)				*(0.093)*				*(0.098)*		
CR	-0.0048	0.001	***	CR	-0.003	0.084	*	CR	-0.004	0.046	**
	(0.001)				*(0.002)*				*(0.002)*		
INFL	0.0319	0.003	***	INFL	0.064	0.001	***	INFL	0.038	0.002	**›
	(0.011)				*(0.020)*				*(0.012)*		
GDP	-0.2583	0.059	*	GDP	-0.001	0.921		GDP	-0.142	0.373	
	(0.137)				*(0.001)*				*(0.160)*		
UNE	-0.0028	0.007	***	UNE	-0.001	0.120		UNE	-0.002	0.008	**›
	(0.001)				*(0.001)*				*(0.001)*		
ED_1	0.0013	0.180		ED_1	-0.000	0.987		ED_1	0.001	0.469	
	(0.001)				*(0.001)*				*(0.001)*		
SD_1	-0.0029	0.005	***	SD_1	-0.004	0.000	***	SD_1	-0.003	0.003	**›
	(0.001)				*(0.001)*				*(0.001)*		
GD_1	0.0029	0.002	***	GD_1	0.005	0.000	***	GD_1	0.003	0.000	**›
	(0.001)				*(0.001)*				*(0.001)*		
	R^2 Adj	*0.974*									
	Obs	*1306*			*R^2 LSDV*	*0.981*		Hasman: P value = P (χ2(11) > 54.8726 = 0.00			
	F(11,1296)	*4554.28*			*Obs*	*1306*		Sum of residual squares 183.86			
	P value(F)	*0.000*									

Note. The numbers in italics are standard error. Abbreviations: OLS, ordinary least square. Level of significance *10%; **5%; ***1%.

Source: our elaboration

4 Conclusion and Discussion

The study highlighted some interesting considerations on the sustainability of the banking sector in Europe and the role of non-financial disclosures in influencing banking Operational Risk.

In particular, the existence of a significant relationship between ESG information score and Operational risk of listed banks in Europe was examined; similarly, the relationship between the individual dimensions that make up Bloomberg's ESG information was investigated, in order to analyze whether there is a measure that affects the subject under study more than others. Furthermore, the analysis was carried out by inserting macroeconomic determinants into the econometric model since the study of the documented influence of the macroeconomy on banks is inviting (Barth, Caprio, & Levine, 1999; Bikker & Hu, 2002; Bikker & Metzemakers, 2005; Baele, De Jonghe, & Vennet, 2007; Wagner, 2007; Somoye & Ilo, 2009; Nijskens & Wagner, 2011).

European countries are the leading countries when it comes to support sustainable development. Banks listed in European Union countries were selected as the object of the research because they support social and economic development. Currently, the banking sector plays an important role in the development and growth of the European economy.

In light of the empirical results obtained, this work suggests that European banks should continue to report their sustainable commitment through disclosure (Galletta, Goodell, Mazzù, & Paltrinieri, 2023).

In fact, it has been shown that operating income appears to have a positive relationship with the ESG Disclosure Score and the Governance Disclosure Score.

Therefore, the findings have important managerial implications considering the potential impacts of ESG disclosure, as well as for banks considering how to disclose ESG-related information. The findings suggest that non-financial reporting plays a key role in improving the efficiency of risk management, which in turn can have significant consequences for the financial economy.

The contribution, despite having a broad evaluative vision, represents a preliminary version of the work that will be carried out by expanding the reference time horizon and overcoming the limits deriving from the period analyzed which concerns the pre-Covid period. In fact, it would be useful to analyze the impact of ESG Disclosures from 2019 onwards. The period studied does not include the further economic/financial shock post-economic crisis resulting from the pandemic. It would be interesting to include time dummies by extending the time horizon and analyzing the differences between the effects of the subprime mortgage crisis and the consequences of the pandemic in the financial sector. Furthermore, it could be interesting, given the difficulty of quantifying Operational Risk (Sturm, 2013), to use another variable for the object of study for comparison and for a more robust analysis (BCBS, 2006).

Among the future perspectives, the objective is to deepen the analysis through the use of a dynamic panel model and verify the research hypotheses by distinguishing by type of bank and moving from a financial to an operational perspective, evaluating the market response in light of stakeholder theory.

APPENDIX A

Table A1 – Variance inflation factor (VIF) test

SGR	1,119	SGR	1,173
NIM	5,124	NIM	4,872
ln_SIZE	4,382	ln_SIZE	4,125
COV	1,979	COV	1,955
TCR	1,457	TCR	1,424
INFL	1,103	INFL	1,083
GDP	1,353	GDP	1,388
UNE	1,385	UNE	1,486
ESGD	1,031	ED	2,278
		SD	2,015
		GD	1,608

Source: our elaboration

Table A2 – White test

OLS model (1)

$$ln\_OI_{it} = \beta_0 + \beta_1 SGR_{it} + \beta_2 NIM_{it} + \beta_3 lnSIZE_{it} + \beta_4 COV_{it} + + \beta_5 CR_{it} + \beta_6 INFL_{it} + + \beta_7 GDP_{it} + \beta_8 UNE_{it} + + \beta_9 LIQU_{it} + \beta_{10} ESG_{it-1} + \varepsilon_{it}$$

$$P\ value = P\ (\chi 2(54) > 592{,}27 = 0.00$$

OLS model (2)

$$ln\_OI_{it} = \beta_0 + \beta_1 SGR_{it} + \beta_2 NIM_{it} + \beta_3 lnSIZE_{it} + \beta_4 COV_{it} + + \beta_5 CR_{it} + \beta_6 INFL_{it} + + \beta_7 GDP_{it} + \beta_8 UNE_{it} + + \beta_9 LIQU_{it} + \beta_{10} ED_{it-1} + \beta_{11} SD_{it-1} + \beta_{12} GD_{it-1} + \varepsilon_{it}$$

$$P\ value = P\ (\chi 2(77) > 609{,}52 = 0.00$$

Source: our elaboration

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Disenabling fossil energy production in Civitavecchia

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Abstract

A powerful and widespread bloc of vested interest that resists the exit from fossil fuels and defends the current fossil centric world-system concurs substantially to obstruct sustainability transitions. This article assumes that to 'phase in' these transitions it is first necessary to 'phase out' such bloc., i.e. to disenable the 'fossil machine', the novel analytical and descriptive category proposed and framed to investigate the 'phase out' side of sustainability transitions. The article analyses the disenablement of the fossil machine of fossil energy plants in Civitavecchia – the long-standing 'fossil energy' city close to Rome, Italy – whose planned coal to gas conversion was recently abandoned. To this end, besides the concept of fossil machine, the article specifies the notions and potential of 'destabilisation' and 'disruption' and use them to examine how multiple agents disenabled the fossil machine under scrutiny. It then goes on to frame the practices of destabilisation and disruption occurred in Civitavecchia within a broad societal framework articulated in 'axes of disenablement' and concludes by putting forward lessons and ways forward to disenable the fossil machines.

Keywords – Agents of transformation; Axes of disenablement; Destabilisation; Disruption; Fossil machine.

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1 Introduction

Since the post-war boom in consumption and population, the Earth's temperature has rocketed (Bova, Rosenthal, Liu, Godad, & Yan, 2021; Kaufman et al., 2020), causing an upsurge in the frequency and intensity of extreme weather events, with a global climate catastrophe possible (Lenton et al., 2019; Bradshaw et al., 2021; IPCC, 2022) if carbon emissions are not dramatically cut. The current roadmap to decarbonise global socio-economic systems is proving inadequate to tackle the impending climate crisis (IPCC, 2021; IISD, 2022; UNEP, 2022). While global carbon emissions from fossil fuels hit record high in 2022,[1] fossil fuel companies continue to invest hundreds of billions of dollars in 425 'carbon bombs' that, if exploited until their end, would emit 646 bl tons of CO_2, i.e. twice as much as the global carbon budget that must not be exceeded to keep global warming at +1.5°C (Kühne, Bartsch, Tate, Higson, & Habet, 2022). In brief, our socio-economic systems seem to continue to be trapped in fossil fuels: to understand this gridlock it is necessary to investigate this fossil centric world through a broad socio-political perspective to evince its structure, scale, entanglements, powers and conflicts.

Approaches aimed at moving our socio-economic systems toward a low carbon world by and large adopt either a 'phase in' or a 'phase out' focus (Paterson, 2021), however framed, specified, and termed. The first, much more developed and embraced for instance by most of the transition and transformation literature (e.g. Geels, 2014; Geels, Sovacool, Schwanen, & Sorrell, 2017; Roberts et al., 2018; Köhler et al., 2019; Kivimaa, Laakso, Lonkila, & Kaljonen, 2021), concentrates on the facilitation of the emergence and diffusion of innovative technologies, practices, policies, and governance systems to favour sustainability. It envisages the transition to a low carbon world as a creative, experimental, positive action based on socio-technical innovation and human ingenuity. The phase out focus is instead a stark effort to dismantle the entrenched fossil-centric world to make room to a sustainable future. It revolves around the ways to challenge and eventually overcame the fossil incumbent's power and resistance to a low carbon future (Morgunova, 2021). This is a perspective embraced by the literatures of climate politics, political economy, political ecology, anthropology of infrastructure, science and technology studies, philosophy of technology, energy humanities – see, for instance, Berners-Lee and Clark (2013), Healy and Barry (2017), Mangat and Dalby (2018), Newell and Simms (2020), Ford and Newell (2021), Paterson (2021), Grasso (2022) – and more recently adopted in the transition literature, for example by David (2017), Davidson (2019), Rinscheid, Rosenbloom, Markard, and Turnheim, (2021), Van Oers, Feola, Moors, and Runhaar, (2021), Frank and Schanz (2022), Grasso and Delatin Rodrigues (2022).

[1] See The Global Carbon Project – Carbon Budget 2022 at: https://www.globalcarbonproject.org/carbonbudget/index.htm.

This article embraces the 'phase out' perspective and its goal is the investigation of the concerted practices of destabilisation and disruption that multiple agents carried out to disenable a functioning fossil machine (FM).

More specifically, destabilisation and disruption – i.e. practices to stigmatise, delegitimise, obstruct, slow down, dismantle and/or stop an FM – will be investigated in relation to the FM of a group of coal plants in Civitavecchia – the long-standing 'fossil energy' city close to Rome – whose planned fossil-to-fossil conversion – coal to gas – was recently abandoned.[2]

The article first explains the descriptive and analytical new categories introduced – the FM, destabilisation, and disruption – then examines how multiple agents destabilised and disrupted – i.e. disenabled – the Civitavecchia's FM. The article goes on to frame these practices within a broad societal framework articulated in 'axes of disenablement' and concludes by putting forward lessons and ways forward to disenable FMs.

2 The fossil machine: destabilisation and disruption along disenablement axes

Consistent with the perspective of 'extractivism' (e.g. Chagnon et al., 2022), the FM can be understood as a heterogeneous reticular structure (Appel, Mason, Watts, & Hubber, 2015; Anand, Gupta, & Appen, 2018; Appel, 2019) to enable fossil-centred economic growth built around a specific major fossil infrastructure: extractive and production sites, refineries, regasification plants, fossil powered power plants, pipelines, terminals, carbon offsetting sites – e.g. for underground storage and for nature-based solutions.

An FM is usually set up, coordinated, and led by large fossil-fuel companies and includes governments and policymakers at various level, formal institutions, industry representatives, unions, other industries dependent on fossil fuels, the financial system, managerial elites, the military, epistemic communities, PR companies, think tanks, conservative pundits, advocacy groups, private foundations, and the media and communication systems. Its boundaries are unstable given the reproducibility and substitutability of its components and its constant expansive metamorphosis (Anders, 2007) and look blurred and elusive given its camouflage capacity that can make the FM almost invisible (Macdonald, 2017). To maintain the legitimacy and acceptability of fossil fuels, the FM habitually uses practices of Gramscian '*trasformismo*' able to accommodate counter-hegemonic pressures to change within its hegemonic framework. It also routinely engages in a 'war of position' to form alliances and expand its

[2] The definitive abandonment of the conversion to gas of the coal plant was officially announced by Enel – an Italian multinational producer and distributor of electricity and gas which over the time has managed to own and run all the fossil plants in Civitavecchia – on 7th October 2022.

sphere of influence across multiple dimensions of power (Ford & Newell, 2021). For instance, the FM manipulates the narrative on fossil fuels and climate change through discursive forms of power; institutional power allows it to anchor its interests to ongoing political negotiations and policy changes by routinely establishing networks with policymakers, with the latter internalising its ideas and interests; on a material level, the FM uses instrumental means – money, authority, access to funding, lobbying skills, and political networks – to achieve its goals.

Drawing from the social sciences concepts of web (Marriott & Minio-Paluello, 2013), assemblage (Stewart, 2012; Watts, 2012), infrastructural ecologies (Banoub & Martin, 2020), network (Barry, 2006; Mitchell, 2011), regime complex (Keohane & Victor, 2011), and complex system (Watts, 2005), the FM establishes an otherwise unobservable explicit relational space – which extends far beyond the places where fossil fuels are materially treated – where its components strive to perpetuate fossil continuity and where opponent agents conduct its disenablement. The notion of FM offers a unified viewpoint on the large-scale functional articulation of fossil fuel-related processes and of the socio-political environment (Simondon, 2016) created to ensure support for its continuity. This notion at the same time exposes the vulnerable nodes of the fossil-centric model (Mitchell, 2011) and makes it visible the more suitable entry points to confront it. Additionally, given the progressive depoliticization of climate change (Swyngedouw, 2013, 2022) and the hegemony in climate discourse of the mono-technological fossil culture (Hui, 2020a), the FM can reinvigorate phase-out perspectives on sustainability transitions since it makes possible to re-politicise them and to abandon this narrow mono-technological ambit by focusing on the conflictual dynamic between fossil interests and a common future for all on a liveable planet (Latour, 2018).

In a theoretical perspective the FM is a novel descriptive and analytical category in the phase out literature inspired in its focus on the coalescence of vested interests and material practices to what the Italian Marxist philosopher Antonio Gramsci (1929) defined a 'transnational historical bloc'. The machine concept clarifies the intersection between the biophysical, climatic, and ecological dimensions and the socio-technical, economic, cultural, and political ones (Bakke, 2016; Simondon, 2016; Guattari, 2018; Fisch, 2019; Hui, 2020b) of the broader fossil world and elucidates the variety of agents and activities involved in the extraction, refinement, distribution, and combustion of fossil fuels. The FM is a continuous process of material and immaterial assemblage of the various components of this system to ensure its functional continuity over time.[3]

[3] The FM is then a, so to speak, dynamic and composite view of what the UN Secretary General Guterres in a recent speech insightfully referred to as 'enablers' of 'fossil fuel producers', a conglomerate of interest that he rightly considers the main obstruction to the needed 'renewables revolution' (Elliot, 2023).

It should be eventually underlined that this article carries out a, so to speak, piecemeal analysis of a specific FM and cannot clarify whether its disenablement in Civitavecchia actually meant a reduction in the capacity of its components to give birth to other FMs in other location or not.

As said the concept of FM delimitates a relational space to identify and dynamically explain how different agents guarantee and oppose its continuity, i.e. how they disenable it. The agents involved are termed here 'agents of transformation' (ATs): they have no univocal identity, but they can rather be categorised in terms of activity in relation to a FM. Additionally, ATs could have been components of the FM and could even return to that status. For instance, most unions were parts of the Civitavecchia's FM to protect labour, but when they could overcome the job/health dichotomy, as explained in what follows, they became ATs; if such realization had proved for whatever reason wrong, it is likely that they could have re-joined the FM.

For analytical purposes, disenablement is articulated in 'destabilisation' and 'disruption'. The current transition literature tends to use these terms interchangeably and without thorough specification (Turnheim & Geels, 2012, 2013; Van Oers, Feola, Moors, & Runhaar, 2021; Frank & Schanz, 2022) as actions necessary to move towards a low carbon future. In this article AT's destabilisation and disruption practices are instead circumscribed through their effects on the components of the FM. A particular AT can simultaneously be involved in destabilisation in one context and/or point in time, while engaged in disruption in another context and/or point in time. For instance, a climate NGO may try to destabilise the oil industry through awareness-raising initiatives, but as shareholder of an oil company, the same NGO can attempt to disrupt it through resolutions and other initiatives aimed at stand in the way in the corporate works. Based on this distinction, ATs in general use destabilising practices to stigmatize and delegitimize a FM. Destabilisation breaks the consensus about the naturalised use of fossil fuels and foments dissent against the fossil model. It engages part of the social environment – including communities not directly involved in the FM – and aims to generate, foster, and maintain social/moral norms and principles and good practices that denaturalize the use of fossil fuels (Jamieson, 2017; Wilson, Szeman, & Carlson, 2017) and shape behaviour in favour of a less harmful low-carbon world, also by contrasting climate denial and strategies of delay and obstruction. Practices of destabilisation are carried out, for example, by favouring the acknowledgment of the harmfulness of fossil fuels, emphasizing the harmful behaviour of fossil companies, discouraging high-carbon lifestyles, supporting the rectification of the harm done. In short, such practices shape and steer individual and collective behaviour – inside and outside the FM – in different contexts and at different levels towards interiorising and embracing progressively less carbon intensive attitudes and approaches.

ATs carry out disruption – not necessarily proximate to the places where fossil fuels are physically located – through existing institutional, political, and economic arrangements that directly target the components of the FM to obstruct, slow down, dismantle and/or stop the reproduction of the fossil model and its overall functioning, fruition, and continuity. Disruption practices consist of, for instance, lawsuits, legal and administrative provisions, divestment initiatives, shareholders resolutions, alternative non-fossil options, projects, and plans. By constricting the FM, disruption opens new opportunities for experimenting and implementing low/non-fossil pathways.

Destabilisation and disruption can be usefully investigated through and along 'disenablement axes', internally homogeneous social areas recurrent in the, so to speak, energy and social sciences literature (e.g. Köhler et al., 2019; Kivimaa, Laakso, Lonkila, & Kaljonen, 2021; Grasso & Delatin Rodrigues, 2022). They can be grouped according to the set of issues predominantly addressed: i) socioeconomic-technological, ii) institutional-political, and iii) educational-informational. Disenablement axes are context-dependent and Table 1 (see below) lists those most relevant to the Civitavecchia's FM, as well as some of the practices (for the sake of simplicity, as yet not divided up into destabilisation and disruption) that ATs carried out in relation to the FM under scrutiny.

Table 1 – Disenablement axes and examples of practices of destabilisation and disruption of the Civitavecchia's FM

Set of issues	Axis	Practice
Socioeconomic-technological	Social cohesion	Communitarian meetings, assemblies, and demonstrations
	Economy	Strikes
	Science and technology	Alternative low carbon projects
Institutional-political	Governance	Community/policy-makers joint initiatives
	Law	Legal appeals against the fossil industry
	Policy	Regulations and laws against fossil fuels
Educational-informational	Culture	Protest and dissent artworks
	Education and awareness	Civic science program in epidemiology
	Media and communication	Formation of counternarratives

Source: our elaboration

The disenablement of an FM first requires expressive, symbolic, and material practices able to develop new social norms, key values and concepts, and institutionalise new moral principles (Gunningham, 2017) to denaturalise fossil fuels. As said, we recognise these as being destabilisation practises, and they are carried out by ATs which we shall hereby refer to as 'primary'. Investigating primary ATs' role is essential to explore the other ATs, termed 'operational', which are mainly involved

in disruption. The latter practices are more feasible when the socio-cultural context is 'ripe': that is, when the urgency to eliminate the dangerous relationship with fossil fuels is perceived by a wider public. However, to achieve this level of maturity, disruption must be rooted in destabilisation: in other words, the success of primary ATs has a knock-on effect on operational ones.

3 The case of Civitavecchia

3.1 The Civitavecchia's FM

The FM scrutinised in this article refers to the Civitavecchia fossil plants. They were installed in the immediate post-war period: work began in the summer of 1951 in the Fiumaretta area whose first – coal and then naphtha – plant remained in operation from 1953 to 1990. A further plant was installed in the Torrevaldaliga Nord area and began its operation the 1960s: it was originally a fuel oil-fired thermal power plant consisting of four groups with a total capacity of 2,640 MW. This plant was reconverted to coal in 2003 through the installation of three steam generators (boilers), built by the multinational company Ansaldo-Hitachi. Another power plant in the Torrevaldaliga Sud area was commissioned between 1964 and 1973. This latter plant, which originally consisted of three groups (1-2-3) of 320 MW of electricity each and one group of 180 MW of electricity, underwent extensive modifications over time and the 1-2-3 groups were transformed into combined cycle groups; two new sections called TV5 (800 MW) and TV6 (400 MW) entered into operation in 2005. In 2019 ENEL presented its plan for the conversion to gas of these existing coal plants and the installation of new gas plants in the Civitavecchia area, as a response to the requirement to quit coal for energy production of the imminent National Integrated Energy and Climate Plan (*Piano Nazionale Integrato per l'Energia e il Clima* – PNIEC) which was eventually adopted in January 2020.

Besides the plants, the perimeter of the Civitavecchia's FM is difficult to pinpoint given the camouflage capacity of this kind of 'assemblages' and their continuous necessary transformation to maintain their functional continuity based on the relentless inclusion and dismissal of components throughout their life. The arc time of this research (2019-2022) focused on the disenablement of the Civitavecchia's FM – the last segment of its lifecycle – and reveals particularly those parts most exposed to destabilisation and disruption. The plants themselves were the main object of protests and awareness-raising campaigns; other prominent components were political groups which aligned and realigned their positions in favour or against the FM, and unions whose ondivagous role depended mostly on the everchanging sensitivity to the – already mentioned – health/job conundrum. It should be

noted that unions were an overly problematic component of the Civitavecchia's FM: in Torrevaldaliga Nord alone there are now 320 direct plants employees members of the Federazione Italiana Lavoratori Chimica Tessile Energia Manifatture (Filctem), 460 metalworkers protected by the Federazione Impiegati Operai Metallurgici (Fiom), and 200 dockers engaged in coal unloading referring to the Federazione Italiana Lavoratori Trasporti (Filt).[4] An integral part of the FM, trade unions have moved, as we will see, from support to protest – due to the prospect of job cuts caused by the switch to gas – thus favouring its disenablement; it is however impossible to specify how each union positioned itself during the life of the FM.

Other components of the FM remain unexplored though: for instance, the financial galaxy that supported it,[5] insurance companies, subjects along the fossil supply chain, maintenance and consulting companies, the international coal supply market[6].

Altogether, the Civitavecchia's FM disseminated a narrative of progress, after the city was reduced to rubble in World War II. By generating jobs and professional qualifications, Enel could present itself as a promoter of local development. But progressive environmental degradation and health impacts – with an increase in cardio-respiratory diseases, allergies, and cancer – triggered intense confrontation and continuous protests within the community. Dissident, citizen-driven expertise uncovered the consequences of continuous exposure to fossil fuel-generated pollution. Studies carried out by citizen-led epidemiology groups – a form of civic monitoring, understood here as a practice of destabilisation – showed a dramatic spike of certain forms of cancer directly linked to the coal-fired power plants.

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[4] See, for instance: https://ilmanifesto.it/centrale-enel-a-civitavecchia-ecco-la-svolta-green-della-cgil.

[5] Just to catch a glimpse into the complexity of the financial ramifications of this FM whose fulcrum was Enel, it is useful to point out that in the company's 2010-2016 investment prospectus the shareholders holding more than 2% of the shares were the Ministry of Economy and Finance with a direct control of 13.88%, Cassa Deposito e Prestiti with 17.30% and Blackrock Inc. indirectly through Blackrock Investment Management (Uk) Limited with 3.02%. In 2009 Enel entered into a financial agreement totalling €8 billion with the following institutions: Banco Bilbao Vizcaya Argentaria, S.A., Banco Santander Central Hispano S.A., BNP Paribas S.A., Caixa d'Estalvis i Pensions de Barcelona "la Caixa", Caja de Ahorros y Monte de Piedad de Madrid, Calyon S.A. Milan Branch, Intesa SanPaolo S.p.A, Mediobanca, Natixis S.A. Milan Branch, The Bank of Tokyo Mitsubishi UFJ Ltd Milan Branch, The Royal Bank of Scotland Plc, Unicredit Market Investment Banking through Bayerische Hypo Und Vereinsbank Ag, UniCredit Bank AG, Milan Branch (*Prospetto Enel relativo all'offerta pubblica di sottoscrizione e alla contestuale ammissione a quotazione sul mercato telematico delle obbligazioni del prestito denominato "Enel tf 2010-2016" e delle obbligazioni del prestito denominato "Enel tv 2010-2016"*: https://www.deutsche-bank.it/files/documents/sezione-prospetti/offerte-pubbliche-di-scambio/ProspettoEnel.pdf).

[6] For instance, the coal used in the Torrevaldaliga Nord plant over time came from different coal fields around the world (Poland, South Africa, the United States, Venezuela, Colombia, Indonesia, China and Australia; See: https://va.mite.gov.it/File/Documento/274296).

3.2 Methodological approach and ATs involved

One main objective of our empirical investigation was to map the destabilisation and disruption practices used since 2019 by Civitavecchia ATs to disenable the city's FM. We carried out our research from February to September 2022, collecting material through interviews and digital media (Caliandro & Gandini, 2019). We conducted non-structured and structured interviews online with relevant primary and operational ATs to gather information on i) the disenablement axes ATs mostly used, ii) the actual destabilisation and disruption practices they carried out along axes to target the FM's components, and iii) the evolution of destabilisation and disruption practices. To complement and contextualise these interviews, we used digital ethnography methods, which consisted of following the interviewed ATs and their networks in online spaces (social networks, news portals, etc.) (Marres, 2017). The digital infrastructure also allowed access to articles published in magazines, online newspapers, and discussion forums.

Between April and June 2022, a total of 8 non-structured interviews were carried out with Civitavecchia's primary and operational ATs, as reported in Table 2, along with the axes they predominantly worked on and examples of destabilisation and disruption practices they carried out.

In September 2022, two structured interviews (in addition to previous non-structured interviews) were conducted with the two ATs with the most comprehensive knowledge of the issues at stake and of the role of all the other ATs involved.[7] The objective was to get a more general perspective on destabilisation and disruption. Furthermore, these interviews made it possible to directly consider the temporal dimension of these practices with a focus on the evolution of social goals within these practices.

It should be noted that a future development of this article envisions a methodological refinement. It consists in extrapolating from the interviews carried out a qualitative-quantitative assessment of the impact of the different actions with respect to the outcome on an ordinal scale to evaluate the weight of the individual axes of disenablement and their interactions. Besides establishing a replicable framework to compare different situations, this more robust methodological approach would make it possible also to infer ex-ante policy directions.

[7] To avoid possible conflicts, we cannot disclose the identity of the two ATs interviewed in this second round since they were asked to discuss and 'evaluate' destabilisation and disruption practices of all other ATs.

Table 2 – ATs interviewed, axes, and types of practices of destabilisation and disruption

AT	Axis	Practices of destabilisation/disruption
Città Futura (environmental group)	Social cohesion, Science and Technology, Culture, Education and awareness, Media and communication	Meetings; research; cultural events; educational events; information through social media and various other channels
Comitato Sole (environmental group)	Social cohesion, Science and Technology, Culture, Education and awareness, Media and communication	Meetings; research; cultural events; educational events; information through social media and various other channels
Confederazione Nazionale dell'Artigianato (the Civitavecchia chapter of the National Confederation of Crafts and Small and Medium-sized Enterprises)	Economy, Governance, Law, Policy	Lobby; participation in institutional and political processes;
Forum Ambientalista (environmental group)	Social cohesion, Science and Technology, Culture, Education and awareness, Media and communication	Meetings; cultural events; educational events; information through social media and various other channels; demonstrations; citizen science
Fridays for Future (social movement)	Social cohesion, Science and Technology, Culture, Education and awareness, Media and communication	Meetings; cultural events; educational events; information through social media and various other channels; demonstrations
No al Fossile (social movement)	Social cohesion, Science and Technology, Culture, Education and awareness, Media and communication	Meetings; cultural events; educational events; information through social media and various other channels; demonstrations; protests
Technical committees (professionals, firms and agencies to support the offshore wind farm and 'Porto Bene Comune' projects)	Social cohesion, Science and technology	Technical support to developing non fossil alternatives
Unione Sindacale di Base (labour union)	Social cohesion, Economy, Governance, Law, Policy	Participation in institutional and political processes; strikes; "state of agitation"

Source: our elaboration

4 Destabilisation and disruption in Civitavecchia along disenablement axes

4.1 The bubbling cauldron of destabilisation and disruption

According to the 'Città Futura' AT group, protest against fossil energy production and its implications started in earnest in the 1980s. The first destabilisation practices demanded the right to health, to a clean environment, and to non-fossil-based jobs for local workers and besides the plants targeted mostly political parties, unions, and local associations; by and large, this just produced a juxtaposition between those parts of the FM that defended the environment and those who defended jobs. In the words of a member of the 'No al fossile' group:

> "Until 2003, the year of the authorisation [to shift energy production from oil to carbon], there was major tension in Civitavecchia that literally caused a rift between parties, unions, associations, and even families. Huge numbers participated, the municipal council of Civitavecchia was occupied for several days. We also occupied the Rome-Genoa-Ventimiglia railway line, interrupting service. Conflict raged, but we couldn't couple the struggle for environmental and public health with that for good employment. The historical context was different, and the immature technologies we had meant that the adoption of any alternative was unlikely in the short term" (De Girolamo & Pezzopane, 2022).

Conflict mostly centred on uncertainties about the local health impacts of fossil production. ATs began to wage political battles around the contrast between environment/health and economy/employment. This juxtaposition was used to justify pro-fossil choices and ensured the support of many citizens, unions, and political groups at the expenses of health and environmental concerns, eventually tearing apart the fabric of the community. As an AT of the Forum Ambientalista group (and former member of the Communist Refoundation Party) states: "Enel has polluted not only the environment, but also people's consciousness."

In turn, as several ATs testify, one of the reasons for the limited capacity for opposing fossil continuity was that parts of the FM and the community remained locked into this narrative of contrast. This prevented them from opening up to issues beyond the environment/job dichotomy and limiting the relationships that could be established with other ATs in the territory.

More recently, according to an ATs from Fridays for Future, "The fundamental thing is to give a chance to young people by creating a different future. Instead of leaving the city and looking for job in Rome, we fought to be able to stay. But to stay in a place that not only offers jobs, but quality of life too." When the question of jobs became a problem for the ATs opposing the coal-fired power plant on

environmental grounds, they began to engage directly with the most vulnerable workers, i.e. direct and indirect employees of power plants.

In 2019, Enel presented its plan for the conversion to gas of the existing coal plants and the installation of new gas plants. According to 'No al fossile' AT: "The switch from coal to gas would not guarantee jobs for those living in the polluted territories, nor environmental protection or public health." At this point in time, the proposal of an 'alternative' – a portfolio of projects based on renewable energies – became a strong foundation for the elaboration of other socio-technical imaginaries beyond fossil fuels. This implied that ATs belonging to environmental groups became sensitive to the concerns of other agents who depended directly on the FM – either for work or for the energy needs of their professional activities.

According to an AT from the 'Unione Sindacale di Base (USB)' – which used to be part of the FM under investigation – the job issue was successfully addressed by the alternatives and was critical to ensuring social and political support for the exit from fossil fuel production and eventually "to deactivate the Enel narrative".

The first alternative project proposed – the 'Porto Bene Comune' – focused on the energy conversion of the port of Civitavecchia and was submitted to the Italian Ministry of Economic Development (Ministero dello Sviluppo Economico – MISE) within the EU-ERC Horizon 2020 call for proposals. In addition to the other renewable project described below (the wind farm), according to ATs, the port is a critical transition point for socio-economic models with a lessened impact on health and the environment. Although it may seem to be a hub for energy consumption rather than production, it was through the port that ATs began to develop socio-technical alternatives. The port was a laboratory that allowed them to make that step forward from mere protest to constructive proposals. The port project envisaged the use of green hydrogen to make this infrastructure the first zero emission port in the Mediterranean.[8] This project was considered fundamental since, according to an AT from the 'No al Fossile' committee, it synthesised the local energy transition process. It brought together not only unrelated ATs, but also complex technical issues and diversified socio-technical imaginaries (Jasanoff, 2015) through which the local future was planned and built from the perspective of clean energy production.

The second alternative project is the offshore wind farm. It has a total capacity of 270 MW and an annual production potential of approximately 935 GWh. Its construction would provide between 300 and 1,000 jobs in Civitavecchia; this project was submitted to the (then) Ministry for the Ecological

[8] In this way, even the port started to be perceived as "autonomous from the city of Civitavecchia, […] a city within the city" as described by one of the ATs working on the 'Porto Bene Comune' project.

Transition for an environmental impact assessment (valutazione di impatto ambientale – VIA). Altogether it is an inclusive and overarching project which pays particular attention to job creation.

It should be pointed out that several sources emphasised that the existence of a favourable national and international context (e.g., the 2020 Italian PNIEC[9] and EU Green Deal) to carbon transformation increased the credibility and feasibility of alternatives to fossils.

4.2 Preparing destabilisation and disruption

Most of the discussions on alternatives for Civitavecchia took place during the Covid-19 health emergency when public face-to-face meetings were prohibited. Their presentation and discussion were made possible by the local media system: ATs were given free access to the local television network, TRC.[10] They also extensively used two digital social networks to foment intergenerational dialogue and build an alternative counter-narrative. Facebook was used for sharing documents and information; this allowed ATs to interact with the population. Instagram conveyed and distributed images of meetings, activities, or environmental damage caused by fossil fuels.

Since 2019, ATs realised that the first necessary step to challenging the FM was to raise awareness about the wrong choices that "had been made and were still being made regarding the development model and social life of Civitavecchia". ATs decided to use the space provided by the local TV network (also streamed on social media) to construct a storyline that framed the conversion to gas within the broad spectrum of development policies, underlining the health and environmental damages caused by fossil fuels over the last 70 years since the first power plant was installed in the city.[11]

The second step was to study the gas conversion project to understand its implications and consequences. To this end, a technical working group was created that, in addition to associations and citizens, included experts and scientists. The first study carried out found that the conversion to gas would cut 90 percent of jobs at the plant. As described in the newspaper 'Il Manifesto':

> "The mobilisation started from the initiative of a small group of workers, with the assistance of some experts, and was consolidated as a series of forces, first citywide, then nationwide, gathered around this project. First of all, the Fiom, Uilm [national unions, that used to be parts of the

[9] When in January 2020 the Italian 'National Integrated Energy and Climate Plan' (*Piano Nazionale Integrato per l'Energia e il Clima* – PNIEC) set 2025 as the year of the exit from coal, demands for the complete cessation of fossil energy production became more explicit.

[10] This local TV channel broadcasted debates between the different ATs that could reach a broad audience that did not make use of social networks or virtual meeting platforms.

[11] According to ATs there is no family in Civitavecchia that did not have a member who had not fallen ill over the years for reasons directly associated with the continued burning of fossil fuels in the area.

> Civitavecchia's FM] and some grassroots unions present at the plant, which successfully called two strikes to demand the realisation of the project. Then various committees and associations, both within the city and external (including the 'Laudato sì' association), then parishes, the diocese, the municipal administration, local businesses, and the regional environmental councillor's office, which have set up or taken part in various conferences and city events in support of the project. A project that has already found planners and investors ready to implement it" (Viale, 2021).

In March 2021, the Lazio Region established the Department for Ecological and Digital Transition (*Assessorato alla Transizione Ecologica e alla Trasformazione Digitale*, ATETD), which according to all ATs interviewed was fundamental – especially its political head, the Five Stars politician Roberta Lombardi – for the advancement of the alternative projects and the consolidation of the new local socio-political structure. The ATETD showed interest in the alternatives from the very beginning: according to a CNA AT: "Had it not been for the political impetus given by the ATETD and by two regional councillors, it would have been very complicated." Later, in October 2021, the ATETD organised a conference on new technologies for the energy transition in Civitavecchia. All ATs were present and encouraged to contribute; different rapporteurs, scientists, professional categories, as well as experts in renewable energy generation officially presented the alternative projects (focusing mainly on offshore wind energy, but to a lesser extent also involving the port), thus broadening the audience that could be concerned with the proposals. One of the lines repeated by almost all participants was that in "Civitavecchia nobody wanted a future linked to fossil fuels anymore."[12] Since this presentation, the ATETD office sped up work on wind power projects and initiated a working relationship with the now defunct national Ministry of Ecological Transition.

4.3 Examples of destabilisation and disruption carried out

This broad overview clarifies that the rejection of fossil continuity, the building of alliances, and the emergence of new collective subjects must be considered on a timeline where different ATs carry out various forms of destabilisation and disruption diachronically. These practices are not limited to the local dimension; international, national, or regional decisions can interfere (favouring or obstructing) the efforts to engage with the Civitavecchia FM.

As stressed above, the multiple forms of destabilisation and disruption can be considered in a relational and dynamic way along the axes outlined in Table 1. In concrete terms, for instance, the availability of a TV channel not aligned to the FM allowed for an efficient communication campaign on

[12] See: https://www.facebook.com/watch/live/?ref=watch_permalink&v=2175019059344879.

the 'Media and communication' axis; or, with regard to the 'Policy' axis, votes against the conversion to gas of the coal-fired power plants that occurred in the municipal and regional chambers set a limit to the action of the FM (first of all, resolution 130 of 24 October 2019 of the Civitavecchia City Council and the 2021 regional provision banning fossil production in the city). Or, again, disruption practices occurred along the axes 'Economy' and 'Governance', with 'states of unrest' (*stato di agitazione*)[13] or strikes called against specific components of the FM, namely the plants and the supply chain linked to them. In relation to the 'Law' axis, while in 2003 groups opposed the conversion of oil to coal filed an unsuccessful appeal in the courts to stop it, in 2019 ATs planned to resort to legal action if Enel – the hinge of this FM – had continued with its initial coal to gas conversion project; the successive decision to abandon the project made it unnecessary.

On the 'Social cohesion' axis ATs made use of classic conflict repertoires, whether authorised or unauthorised, mostly through street demonstrations, the occupation of public buildings, the obstruction of railways and highways, and hunger strikes to cement the social fabric of the community. Attacks and direct confrontations with public authorities, thus targeted as components of the FM, and Enel's leaders were also recurrent – one such instance involved throwing vegetables at Enel executives visiting the city. On the 'Media and communication' axis, reports of environmental damage and of health impacts on the population – largely based on input from activists and researchers – were used to show the consequences of fossil production on the territory. Innovative initiatives were also launched, such as the open microphone proposed by the local chapter of Fridays for Future, to encourage citizens to have their say. Along the 'Culture' axis, ATs have endeavoured to create content – songs, banners, shows – influencing the public perception of the harmful implications of fossil fuels and of the territorial dependence on fossil energy monoculture. Along the 'Governance' axis, consensus that the future of the city should develop outside of the realm of fossil fuels made the coming together of different parties to discuss models of governance of new alternative projects possible. Political parties on either end of the spectrum, initially "part of the FM", according to an AT from 'Città Futura', became ATs that drove territorial demands and perspectives at the institutional level. They established permanent negotiation spaces, effectively creating political representation on an institutional level.[14] Table 3 categorises some of the more remarkable practices of destabilisation and disruption along disenablement axes.

[13] The state of unrest was proclaimed to protest the possible approval of a decree simplifying the licensing procedures for high-impact activities that directly affected Civitavecchia (https://www.fiomromalazio.it/2021/05/dl-semplificazioni-stato-di-agitazione-appalti-tvn/?fbclid=IwAR0xQtkfrpod7asda5w6Pz9N2dWIXzZndXdcNDE1TAUzFdpxlA3qcYOK3to).

[14] In 2021 a 'permanent table' was created with the objective to build a low-carbon future. The document was signed by the mayor of Civitavecchia, Ernesto Tedesco, councillor Brunella Franceschini, the representative of Allumiere, the mayor of Tolfa, Landi, the political parties PD, M5S, Fratelli d'Italia, Lega, Rifondazione Comunista, Verdi and included most of the ATs reported in Table 2.

Table 3 – Destabilisation and disruption practices in relation to the Civitavecchia's FM

Axis	Destabilisation	Disruption
Social cohesion	Communitarian meetings, assemblies, and demonstrations to strengthen the local protests and communities by connecting them to regional and national level similar cases	Job creation through alternative projects
Economy	Lobby by the business community against, and exit from, fossil fuels	Strikes
Science and technology	Environmental and health monitoring Citizen science campaigns	Advancement of technical solutions for the alternative projects
Governance	Bottom-up initiatives – meetings, demonstrations, and protests and alliances – that bonded the local community to political representatives at various levels, in particular the regional one	Permanent table for a low carbon future Strikes
Law	Pollution reporting to legal institutions Environmental rules and regulations (bottom-up proposals)	Lawsuits (projected, not implemented)
Policy	Occupation of city councils	Regulations and laws at the municipal and regional level
Culture	Tour of the power plants Songs Banners Online graphics	n.a.
Education and awareness	Awareness campaigns (e.g., on the possibility of overcoming of the job/health dichotomy) Self-education programmes Citizen science epidemiology, physics, chemistry	n.a.
Media and communication	Shaping narratives Careful use of social media (Facebook, WhatsApp, Instagram)	Subtraction of narrative spaces for the reproduction of fossil fuels

Source: our elaboration

5 Looking into the Civitavecchia's FM disenablement: lessons and ways forward

The analysis carried out falls short of giving a full account of the process of disenablement of the FM that took place in Civitavecchia: however, it allows for some considerations to be drawn, as illustrated below.

A first lesson is that the disenablement of an FM requires multiple ATs to operate at different levels and at different points in time. More broadly, while in the current transition literature destabilisation and disruption practices are just one point in a process to phase out incumbents, the use of the FM as an analytical category evinces that these practices have a much broader scope since they are all along the process of disenablement, indeed they *are* the process itself.

The empirical analysis carried out confirms that ATs are both primary and operational, and that the same AT can play both roles on the same disenablement axis, not necessarily at different times, as well as that there is a potential revolving door between the status of AT and of component of the FM.

The case analysed shows that, as opposed to an emerging perspective of the phase out literature claiming that sustainability transitions are not compatible with the current capitalist political-economic systems (e.g. Van Oers et al. 2021), in Civitavecchia the successful coalition of ATs includes anti-capitalistic agents using capitalistic means to destabilise and disrupt the FM (e.g., the services of engineering firms to deliver the alternative projects and legal initiatives), as well as capitalistic agents using anti-capitalistic strategies (e.g. strikes and blockades). At the same time, our analysis suggests that, contrary to a top-down approach, effective disenablement requires a bottom-up approach that involves the largest possible number of active stakeholders (i.e., ATs). Additionally, in our case study, destabilisation and disruption practices occurred without being spearheaded by charismatic leaders, in contrast to what some of the phase out literature (e.g., Kivimaa, Laakso, Lonkila, & Kaljonen, 2021) seems to postulate.

While by and large phase out literature suggests that disenablement is extremely onerous, in our case study, destabilisation and disruption are not excessively knowledge-, resource-, people-, and time-intensive; as long as these practices are sufficiently widespread the disenablement of an FM can be triggered from relatively limited technological, financial, and human input within a restricted timeframe.

The application to the empirical case under scrutiny of the unique distinction between destabilisation and disruption show how these practices can be practically further differentiated due to an important characteristic: if the former can be successfully carried out by a single AT, the latter requires the collaboration of multiple ATs; since disruption aims to obstruct and occupy the various spaces for fossil reproduction, it needs to be enacted on different parts of the FM, in a variety of forms, and for prolonged periods.

Finally, consistent with the demand for a systemic perspective as voiced by the more recent transition literature (e.g., Davidson, 2019; Kivimaa, Laakso, Lonkila, & Kaljonen, 2021; Van Oers, 2021), a focus on the Civitavecchia's FM highlights how disenablement blurs the usual distinction between sectoral and systemic levels, and shows that a process apparently targeted only to decarbonise the local energy system can involve an entire community/socio-economic ambit and can thus be part of a systemic effort towards a sustainable future.

This evidence prompts four major analytical ways forward. First, both practices of destabilisation and disruption to be carried out successfully along disenablement axes need to operate relationally and are expected to be accelerated by the multiple connections and interactions that ATs establish, and by the convergence of their objectives. Second, the larger the number of the components of the FM targeted by practices of destabilisation and disruption, the larger the chance to successfully disenable the FM. Third to disenable the FM, the existence of feasible renewable alternatives is fundamental. Fourth, while disenablement axes can be used as analytical tools to frame and understand disruption and or destabilisation practices, they are at the same time powerful metaphors to support transformative narratives centred on FMs.

In a pragmatic perspective, the analysis carried out leads to a further major way forward in terms of policy-oriented analysis; in particular, such future investigation can scrutinise the impacts of the Civitavecchia case on the welfare of local communities, compare the outcomes of this work with similar evidence, and identify their potential connections with the multiple existing national and supranational plans for the energy transition.

6 Conclusions

The approach outlined provides a framework to analyse the disenablement of FMs carried out by ATs through practices of destabilisation and disruption targeting its components that take place along disenablement axes. This article analysed the disenablement of the Civitavecchia's FM that, from 2019, began to unfurl. The results of this exercise are detailed in Sections 4 and 5: it suffices here to underline the wealth of information and knowledge on the dynamics, logic, and rationales on the disenablement of an FM and the lessons and ways forward that the approach used offers.

In a different perspective, the exercise carried out provides an empirical justification to the analytical categories introduced – the FM, destabilisation and disruption – as such justification requires their analysis and contextualisation to ensure their real potential, actual scope, and limits are clarified. In brief, it seems that the application of the notion of FM, destabilisation, and disruption to a complex

case study such as Civitavecchia evinces that these categories are fit for purpose to help understand and disentangle the multi-layered complexity of the fossil world and to understand how to win its resistance to move toward a low carbon future. It seems therefore safe to argue that the current approach can be applied to carbon-centric systems to understand how to overcome resistance to exiting fossil fuels.

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Challenges and limitations in the teacher's role as a counselor during the COVID-19 pandemic

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Abstract

In the conditions of online education, more and more students face states of anxiety or depression, which have effects on their school performance and on their general physical and emotional state. In this situation, it is necessary that teachers, beyond the subjects they must teach, offer time and attention to the issues related to students counseling, to overcome the difficult moments in which the students find themselves. Using the focus-group method, the present study shows perceptions and opinions of teachers from Caraș-Severin County (Romania), regarding to the counseling activity carried out during the pandemic with COVID-19. This study provides an overview of the beneficiaries of the counseling process, the types of issues for which they seek psycho-pedagogical counseling, identifies the attitudes of the counseled individuals towards counseling activities, illustrates the qualities required of a teacher to fulfill the role of a counselor, and highlights the challenges and limitations associated with conducting counseling activities during the COVID-19 pandemic. Students are the primary beneficiaries of counseling activities, as stated by 100% of the participants, according to the data collected. Psycho-pedagogical counseling focuses primarily on learning difficulties, which make up 75% of the issues addressed by instructors. Personal development and family counseling comprise the majority of counseling activities (22.62% and 16.67%, respectively). The majority of participating instructors (67.87%) characterizes the individuals counseled as cooperative. According to the opinions of 38.10% of instructors, empathy is the most essential attribute of a counselor-teacher. The promotion of health and well-being, as indicated by 84.52% of teachers, is a significant challenge in counseling during the COVID-19 pandemic. Moreover, the primary limitation of the psycho-pedagogical counseling relationship developed by teachers during the pandemic is nonverbal behavior, which is significantly more difficult to observe, analyze, and interpret in online activities (52.38%).

Keywords – Counseling; Teacher; Role; Counselor; Challenges; Limitations.

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1 Introduction

Psycho-pedagogical counseling is addressed to students, parents, teachers, etc. – respectively to those people who go through various learning experiences – to form and develop their own personality. Person-centered counseling involves an empathizing process between the counselor and the counseled person during the counseling relationship, to identify appropriate and real solutions to the problems that require our attention. For Gustad (apud Micleușanu & Cuznețov, 2015, p. 56), counseling is defined as a process of orientation – learning that takes place in the space of reality created between two people, a couple, in which the counselor with a competence in psychological issues, offers his client appropriate methods to his needs, in relation to the context of life events, in this way establishing a personal program of overcoming difficulties.

Inskipp and John (apud Oancea, 2002, p.23) define counseling to relate and respond to another person, to help them explore their thoughts, emotions, and behavior towards gaining clearer self-understanding and learning to find and use its strongest parts / resources so they can face life more efficiently, making appropriate decisions and acting accordingly. Wallis (apud Micleușanu & Cuznețov, 2015, pp. 8-9) considers that counseling is a dialogue in which one person helps another who has significant difficulties.

Counseling can be viewed as an art that assists others in resolving their issues and challenges in life (Chandra, 2002). Counseling is a procedure that can be intervention-based or developmental. Counselors concentrate on their clients' goals. Thus, counseling requires both choice and transformation (Karunanayake, Chandrapala, & Vimukthi, 2020).

Objective knowledge and understanding of human behaviors are fundamental requirements for those who engage in the counseling process (Neamțu, 2016, p. 45).

The efficiency of the counseling process depends mostly on how certain principles are followed, such as: confidentiality, unconditionally positive attitude towards the client, avoiding preconceived notions and premature conclusions, empathic reaction, but also empathetic attitude with the client.

The teacher in the pedagogical counseling process can approach different attitudes, directive or non-directive, depending on the specifics of each case, but especially on the experience and competences of each teacher to successfully fulfill the role of school counselor.

In person-centered counseling it is generally recommended that the teacher-counselor adopt a non-directive position, for example the counselor should not give advice, should not criticize, interpret, or provoke the counseled person to follow a certain required "recipe" for success imposed from the outside by the teacher as a counselor. On the contrary, the counselor's attitude, which strengthens people's innate ability to be agents of their own change, can be extremely helpful. In this context, psycho-pedagogical counseling does not focus on the problem itself, but on the client as a person. The

goal is self-discovery and acceptance for the person to function by becoming able to make decisions, now and here.

The counselor, in the success of his act, needs a set of skills / competences. Among these competences we mention (Micleușanu & Cuznețov, 2015, p. 52):

- active listening: aims at listening carefully to the counselor and encouraging through verbal and nonverbal behavior the open expression of problems;
- observation: refers to the counselor's competence to notice details of the subject's verbal and nonverbal behavior, to notice the congruence between the two forms of communication, but also to identify his feelings;
- addressing questions requires attention in the selection of types of questions and even when they are addressed;
- providing feedback: providing realistic and effective feedback is a skill that supports effective communication between counselor and counselor. All the time, the feedback must be focused on the positive aspects, it must be constructive and focused on a specific behavior. When we offer a feedback, we must do it immediately to reinforce the behavior;
- provision of information: this competence aims at using a common language to the one of the beneficiaries. The amount of information should not be very large, the information must be sufficient and correct to make responsible decisions:
- paraphrasing: reformulating what we consider essential in a message;
- summary: aims at organized verbalization of the most important ideas in the interlocutor's speech. This is always done together with the beneficiary of the counseling;
- reflection: this competence aims at expressing the counselor's understanding of both the informational content and the emotional state transmitted by the subject. The purpose of the reflection is to verify the degree of understanding of those related by the interlocutor, to communicate his understanding, but also his unconditional acceptance.

The idea of conducting a research using the focus group method with teachers who teach in primary school, middle school, high school, came from the desire to give them the opportunity to express their views on the role of counselor played by the teacher in the activity with the students, especially in the specific conditions of the COVID-19 pandemic. The development of these activities allowed teachers to reflect on how student counseling has beneficial effects on students in general and to see in which way these activities can lead to positive results in the personal development of students, which can also lead to increasing their academic performance.

2 Materials and methods

2.1 The purpose of the research

Identifying the perception of the professors participating in the research regarding the exercise of the role of counselor during the pandemic with COVID-19.

2.2 Specific objectives of the research

The specific objectives of the research are:

- identification of persons in need of counseling services / activities;
- specifying the type of problems for which psycho-pedagogical counseling is requested;
- identifying the attitude of the counseled persons towards the counseling activity;
- highlighting the required qualities of a teacher to perform the role of counselor, the nature of the challenges and limitations associated with carrying out counseling activities during the COVID-19 pandemic.

2.3 Target group

The research was attended by 84 teachers from Caraş-Severin County (28 teachers in primary education; 28 teachers in secondary education; 28 teachers in high school) of which 42 live in urban areas and 42 in rural areas. A small part of the teachers participating in the research hold the positions of school counselors (7 people), the rest being regular teachers who teach at different levels of education. The latter carry out counseling activities with students either due to their role as teachers, or as simple teachers in the class who pay special attention to the relationship with the class of students.

2.4 Research methodology

The method used was focus group. The target group was divided into 7 subgroups of 12 people each. The focus group method was applied in each subgroup. Each subgroup included:

- 4 teachers in primary education (2 teachers in rural areas and 2 teachers in urban areas);
- 4 teachers in secondary education (2 teachers in rural areas and 2 teachers in urban areas);
- 4 teachers from high school (2 teachers from rural areas and 2 teachers from urban areas).

Through the focus group, the aim was to obtain qualitative data that capture the perceptions and opinions of teachers in connection with the exercise of the role of advisor by teachers, but also quantitative data of a numerical type.

Each teacher participating in the focus group received a set of 7 items that were discussed / debated within the focus group. At the end of the activity, the answers were recorded, and the data obtained for each item for this research were inventoried. The focus group activity of each subgroup took place over 90 minutes. The professors participating in the research were encouraged to answer honestly, stating that in the end their answers will be noted, without recording the names of those who issued those opinions. The answers were statistically processed.

The data has been collected through the focus group method, carried out online.

3 Results

3.1 Presentation and interpretation of data

The presentation and interpretation of the data was based on the 7 items followed by the research participants in the focus groups.

Item 1: Who are your counseling activities for?

In the first item, the following data specified in Table 1 were obtained from the professors participating in the research.

Table 1

Variable	Number of answers	%
Students	84	100.00 %
Parents	33	39.29%
Professors	15	17.86%

Source: our elaboration

Item 2. What are the issues for which you exercise the role of advisor?

The data obtained in the second item from the professors participating in the research can be found in Table 2.

Table 2

Variable	Number of answers	%
Difficulties in learning	63	75.00%
Difficulties in adapting to school requirements	36	42.86%
Risk of dropping out of school	12	14.29%
Existential crises due to age	37	44.05%
Family issues	19	22.62%
Parents working abroad	21	25.00%
Vocational guidance	24	28.57%
Violence/Bullying at school	41	48.81%

Source: our elaboration

The most frequently cited problem for which 75% of teachers participating in focus group are engaged in advisory activities is related to the difficulties encountered by certain students at school, which affects their educational performance. Obviously, there are a lot of factors that lead students to achieve below their real potential, which is why the teachers say that they pay special attention to identifying these causes and how each of them affects a student's academic performance. Some students who have difficulty learning are very absent from school and therefore are at risk of remaining correct in certain subjects or even at risk of dropping out of school. For them, school often becomes the place where they do not feel appreciated, valued properly, which can lead them to make the decision to drop out of school. At the same time, the lack of parental control is due to age (students, high school students are less supervised and supported by parents, compared to students in primary or middle school) or specific circumstances (parents are working abroad or parents live in the rural area, and they came to school at city). Also, the unstable environment in economic, emotional, cultural, so on of some families can cause among the children who come from those families offers a state of insecurity, permanent stress, which can lead to widespread states of anxiety, depression, or violence in certain cases. Teachers experience elevated levels of tension on a daily basis as a result of responsibilities such as educating students, administering classrooms, meeting administrative requirements, and addressing the diverse needs of students. This tension can have a significant impact on their health, job satisfaction, and classroom performance. Teachers are impacted by interconnected stressors in their personal lives, the lives of their students, and the larger societal context, which exacerbates the difficulties they face in sustaining their own well-being and effectively educating their students (Robinson et al., 2023). Stressed instructors can have a negative impact on the well-being of their students (Schonert-Reichl, 2017). The added burden of delivering academic content during the pandemic can have a negative effect

on teachers' physical and mental health, thereby influencing the school environment, student outcomes, and teacher retention. Due to tension and dissatisfaction with how schools handled the situation, many teachers departed the profession (Arens & Morin, 2016).

In the teachers participating opinion in the research, the difficulties of adapting to the school requirements concern aspects related to the students' non-observance of school norms, such as: repeated delays, inadequate clothing, strident make-up (among some students), homework, so on. Furthermore, the abrupt transition to online school posed a significant challenge for students, teachers, and parents. This change brought with it a series of difficulties for all those involved, as well as the need to adapt to the requirements of online schooling. Violence at school remains a widespread phenomenon in schools, which determines teachers to carry out counseling activities with a preventive role, but also ameliorating if the acts of violence occurred and affected the students in the class. Teachers say that lately they have been reported cases of cyberbullying, which seem to have increased in number and intensity during online education.

Item 3. What kind of counseling did you provide to students, parents, teachers?

The data obtained in the third item from the professors participating in the research can be found in Table 3.

Table 3

Variable	Number of answers	%
Individually	84	100.00%
Group – personal development groups	19	22.62%
Family counseling	14	16.67%

Source: our elaboration

Regarding the type of counseling carried out with students, parents, teachers, all teachers stated that they carry out activities / actions of individual counseling. In many cases, even when the counseled person is a parent, in general it is also about individual counseling, especially since usually only one parent participates in these activities. In individual, person-centered counseling, the counselor's role is holistic: he must create a climate in which the client feels encouraged, free to explore all aspects of the self, now expresses confidence in the client to achieve an identification work plan of solutions, acting more as a mediator, facilitator of solutions. 19 teachers among those participating in the research state that over time they have organized and coordinated personal development activities for students, through which students have managed to get to know each other better, to collaborate much better with

each other, to support each other in moments of difficulty, to make decisions and to assume the consequences of the decisions taken, to increase their self-esteem, to act responsibly considering their interests and those of others, to efficiently manage the available resources. Of the others 84 teachers participating in the research, only 14 state that they have carried out family counseling activities. Most of those who counseled the family said that the counseled families were willing to cooperate, which over time has resulted in improved school performance for students whose families have benefited from counseling activities.

Item 4. What is the attitude of students, parents, teachers towards counseling activities?

Table 4 shows the data obtained in the fourth item.

Table 4

Variable	Number of answers	%
Cooperative	57	67.86%
Passive / indifferent	15	17.86%
Avoid	12	14.29%
Aggressive	23	27.38%

Source: our elaboration

The success of a counseling activity depends on the ability to express ideas in a simple, precise, direct way as well as the transmission of a small amount of information at once. Sometimes the counselor faces a series of fears, such as fear of the unknown, fear of ridicule, fear of not being judged by others, fear of mistake or failure, etc. The large number of people who show cooperation in the counseling process leads us to believe that these teachers manage to gain the trust of counselors, a basic condition in approaching the counseling process. However, some of the people with whom teachers initiate counseling activities maintain during their process an attitude of obvious distrust, manifested either by a state of passivity or even indifference, or by excessive shyness or a tendency to withdraw, or through a behavior that avoids any commitment to taking on change. A teacher with a lot of tact and a vocation as a counselor will have a lot of patience with these people, knowing that for some of their life stories they have been strengthened by the conviction that they cannot trust others too much and that is why it is difficult for them to give up to the state of passivity, of real or masked indifference, to adopt responsible behaviors, oriented towards personal development and the improvement of school performances. A negative attitude toward counseling may also result from the interaction of factors such

as a lack of professionalism and competence in the counseling process, limited availability of resources, limited practical knowledge, and a low level of awareness of school counseling services among students. These factors influence the perception and appreciation of counseling services and can impede the school system's ability to provide efficient support (Karunanayake, Chandrapala, & Vimukthi, 2020).

Item 5. Which of your qualities as a teacher do you consider to be the most important for carrying out psycho-pedagogical counseling activities?

Core listening skills are fundamental counseling abilities or refined techniques that enable the counselor to attend to the speaker with empathy. These competences include active listening, sensitivity to nonverbal indicators, rapport-building, etc.: "Through active listening, rapport, trust, and the speaker's sense of being heard and understood by the counselor or listener are established" (https://counsellingtutor.com/basic-counselling-skills/).

The counselor, in the success of his act, needs a set of skills/competences. Among these we mentioned above (Micleușanu & Cuznețov, 2015, p. 52):

- active listening: aims at listening carefully to the counselor and encouraging through verbal and nonverbal behavior the open expression of problems;
- observation: refers to the counselor's competence to notice details of the subject's verbal and nonverbal behavior, to notice the congruence between the two forms of communication, but also to identify his feelings;
- addressing questions: requires attention in the selection of types of questions and even when they are addressed;
- providing feedback: providing realistic and effective feedback is a skill that supports effective communication between counselor and counselor. All the time, the feedback must be focused on the positive aspects, it must be constructive and focused on a specific behavior. His offering must be made immediately to reinforce the behavior. Nelson-Jones (2016) distinguishes between observational feedback and experiential feedback. Observational feedback refers to the process of providing information and commentary based on direct and specific observations. This form of feedback focuses on what has been observed in a particular situation or behavior and provides an objective and comprehensive perspective on these observations. The process of offering feedback based on personal or subjective experiences is known as experiential feedback. It focuses on what an individual has felt, experienced, or learned during an experience or activity and shares these impressions with another individual.

Often, experiential feedback is subjective and based on the perceptions, emotions, and perspectives of the individual;

- provision of information: this competence aims at using a language common to that of the beneficiary. The amount of information must not be very large, the information must be sufficient and correct to make responsible decisions;
- paraphrasing: reformulating what we consider essential in a message. The process of paraphrasing involves rephrasing information so that its fundamental meaning is preserved while it is simplified, making it simpler for others to comprehend and engage with (Nelson-Jones, 2016);
- summary: aims at organized verbalization of the most important ideas in the interlocutor's speech; this is always done together with the beneficiary of the counseling;
- reflection: this competence aims at expressing the counselor's understanding of both the informational content and the emotional state transmitted by the subject. The purpose of reflection is to verify the degree of understanding of those related by the interlocutor, to communicate his understanding, but also unconditional acceptance.

The answers given by the teachers participating in the focus groups were centralized in Table 5.

Table 5

Variable	Number of answers	%
Empathy	32	38.10%
The ability to listen actively	17	20.24%
Honesty	5	5.95%
Authenticity	21	25.00%
Optimism	6	7.14%
Knowledge in the field of psycho-pedagogy	3	3.57%

Source: our elaboration

The teacher as a counselor is assigned several characteristics: he possesses his own identity, appreciates, and respects himself, accepts and recognizes his inner strength, is open to others and receptive to change, he makes decisions and assumes responsibilities both for oneself and for others. The counselor is dynamic and active with a sense of humor (Dumitraşcu, 2012, p. 278).

The interpersonal relationship allows to facilitate the change and the development by observing some conditions meant to ensure the success of the counseling activity. In this regard, the teacher uses a

wide range of personal traits to help the counselor respond responsibly and confidently to the counseling process.

Carl Rogers (apud Neamțu & Stan, 2005) defines counseling itself as an interpersonal relationship, which due to the authenticity, but also the sincerity of the counselor, results in increased self-esteem, this being the consequence of a better self-knowledge (Neamțu & Stan, 2005).

The development of psycho-pedagogical counseling activities requires from the teacher a series of qualities meant to make sense of this activity. This article brought the professors participating in the research to a dilemma: which of these qualities is the most important.

According to these data, empathy was nominated by 38.1% of teachers, followed at some distance by authenticity (25%).

Empathy is one of the central dimensions of the counseling relationship. Empathy can be defined as a continuous process in which the counselor leaves aside his own way of living and perceiving reality, choosing to feel and respond to the experiences and perceptions of his client. This feeling can be intense and demanding for the counselor who will, in fact, perceive his client's thoughts and feelings as strongly as if they had occurred in him (Mearns & Thorne, 2010, p. 121).

Item 6. What are, in your opinion, the challenges of the counseling activities carried out in the conditions of the pandemic with COVID-19?

Table 6

Variable	Number of answers	%
Promoting health and well-being	71	84.52%
Self-knowledge and personal development	65	77.38%
Prevention of risky behaviors	35	41.67%
Learning strategies	56	66.67%
Stress and stress control	32	38.10%
Time management	43	51.19%
Career guidance	41	48.81%

Source: our elaboration

Researchers have found that a student's loneliness and social isolation are predictive of depression and consequent anxiety in his or her life. Other mental health issues, such as trauma, suicide, technology addiction, substance abuse, alcohol abuse, familial dysfunction, and numerous others, have

also been highlighted (Pincus, Hannor-Walker, Wright, & Justice, 2020; Wan, 2020; Hou, Xiong, Jiang, Song, & Wang, 2019; Talmus, 2019).

In the conditions of the pandemic with COVID-19, when the risk of infection with the Sars Cov2 virus is particularly high, in the opinion of the professors participating in the research, one of the priorities and challenges of the counseling activity is the promotion of health and well-being (84.52%), respectively of the optimal functioning from a somatic, physiological, mental, emotional, social, and spiritual point of view.

The pandemic of COVID-19 has significantly altered the field of education, including activities related to school counseling and guidance. Students, parents, and teachers have expressed a genuine need for guidance and counseling services for problem-solving and personal development despite the limitations imposed by the pandemic (Ramli & Saputra, 2023). Self-knowledge and personal development (77.38%) are other directions to explore in the conditions of the pandemic with COVID-19. A first step in achieving this goal, according to the teachers participating in the focus group is self-knowledge, strengths and vulnerabilities, awareness of skills, developing skills of assertive relationships with others, manifesting a responsible, creative attitude towards the activity.

The transition to remote and hybrid education raised concerns about “learning loss”. The pandemic resulted in school closures and measures such as mask-wearing, social distancing, and remote learning, making it more difficult to teach and develop relationships in classrooms (Kuhfeld & Tarasawa, 2020).

During the school years, students must process an increasing amount of information and operate with the information at the most abstract level possible. This involves the application of effective study strategies. Unfortunately, education during the pandemic suffered seriously, and students performed poorly in school. Learning to learn in online education can be one of the topics that can be addressed with students during counseling classes. 66.67% of the teachers participating in the research consider it necessary to acquire learning strategies appropriate to the present time, able to stimulate and motivate the student to learn.

As you progress in school, it requires the use of increasingly sophisticated study strategies. Counseling classes provide the framework for developing a program for the development of effective learning strategies, which can capitalize on and enrich the learning experience of students and obviously encourages a reflective educational act.

Counseling for the prevention of risky behaviors is another challenge of the period marked by the COVID-19 pandemic highlighted by 41.67% of the professors participating in the research. The preventive measures for their protection against infection with the SARS-CoV-2 virus are essential, considering that the media is filled with false information that questions the existence and severity of the virus, as well as the effectiveness of protective measures.

Stress is a complex psychosocial phenomenon that arises from the person's confrontation with requirements, tasks, situations that are perceived as difficult, painful or with high stakes for the person in question. Prior to the pandemic, common stressors cited by teachers included a perceived lack of control and influence over classroom decisions and curricula, difficulties in managing student behavior, a sense of insufficient respect for their profession, and a lack of support and resources (Richards, 2012). At the onset of the pandemic, many of these same stressors persisted and were compounded by new concerns regarding physical health, safety, and well-being (Will, 2021; Robinson et al., 2023).

The way in which teachers, students, parents find appropriate answers to the stressful situations they face is the key to a balanced life.

In a constantly changing world, the identification of a realistic vocational path, by capitalizing on existing information about the labor market, corroborated with the skills and abilities of a person is in the opinion of 48.81% of teachers participating in focus groups a necessary step and great interest for students and their families.

Item 7. What are the limits on the exercise of the role of counselor by the teacher during the pandemic with COVID-19?

The data obtained in the seventh item from the professors participating in the research are found in Table 7.

Table 7

Variable	Number of answers	%
Nonverbal behavior is much more difficult to observe, analyze and interpret in the context of online activities	44	52.38%
Absence of skills developed by psycho-pedagogical counseling	13	15.48%
Problems connecting to the internet, to different educational platforms	31	36.90%
Absence of specialists to work in a team with the teacher to increase the efficiency of the counseling process	12	14.29%
Different personality traits of the teacher or counselor that negatively affect the counseling activity	39	46.43%
Lack of motivation	21	25.00%
How to deploy online or face to face	27	32.14%
Time spent on counseling	23	27.38%
Consumption of personal resources – energy, concentration of attention	31	36.90%
Ensuring the privacy of the counseling process	5	5.95%

Source: our elaboration

Feedback plays an important role in the teaching process. Depending on the students' reaction, the teacher builds the following interventions. The fact that students often choose not to open webcams affects the quality of the counseling process conducted online and limits the possibilities for teacher intervention. For 52.38%, the nonverbal behavior of students is much more difficult to observe, analyze and interpret in the conditions of online activities. 15.48% appreciate that they are limited in the activity of counseling students by the absence of skills developed by psycho-pedagogical counseling. In discussions in focus groups, they admit that the counseling activities they carry out with students or parents are often empirical, intuitive, and too little based on a thorough knowledge of the field.

Access to high-speed internet and teaching effectiveness posed significant challenges for instructors providing online classes (Robinson et al., 2023).

Problems of connection to the Internet or on different educational platforms are highlighted by 36.9% of teachers participating in research, while 46.43% consider that certain personality traits of either the teacher or students, parents are a difficult limit to be overcome in the counseling process. In general, a high degree of reactivity (choleric temperament) is brought into discussion, which makes communication difficult in some cases. There are also incriminating attitudes that denote arrogance, criticism, indifference, aggression, sarcasm, irony, rigidity, anger, fear, etc.

The lack of motivation for either the student, the teacher or both is indicated by 25% of the teachers participating in the focus group as a limitation regarding the exercise of the role of counselor by the teacher.

Another limitation highlighted by the professors participating in the research is related to the way of carrying out counseling activities both face to face and online. One of the difficulties felt during the pandemic by a significant part of those living in rural areas was related to the absence of digital skills, as well as electronic distance communication devices. In this sense, many teachers, even taking the risk of falling ill with the dreaded virus, went to the homes of some students, at first to distribute certain work materials (especially worksheets), and then when tablets were received from the government to be distributed to students from families with financial difficulties and to teach them how to use these devices so that they could participate in online courses. Gradually, online activities became commonplace, and online counseling activities tried to make up for the lack of communication and socialization as much as possible.

The consumption of personal resources, respectively energy, attention, motivation was perceived by the teachers participating in the research as quite high. The need to adapt to online education on the part of both teachers and students has led to the allocation of additional time for study and the exploration of online work tools that make the lessons attractive, interactive. Most teachers who felt the need to benefit from counseling themselves complained about the lack of time, but especially said they were

disappointed by the low involvement of students in teaching activities. Many of the students connect only formally; many of them, in the absence of adequate parental control, are distracted from the learning activity with other activities perceived by the students to be much more interesting. Under these conditions, even the counseling activity carried out online with students who do not open their video cameras risks becoming formal and, in some situations, even useless, according to the opinion of some professors participating in the research.

The widespread adoption of online education has brought to everyone's attention the problem of % generates in the use of distance communication technology. In these conditions, finding an effective time different from the classes in which students participate in online counseling activities was a real challenge for 27.38%. Ensuring the privacy of the counseling process becomes difficult especially in situations where the student cannot retire to a separate room to talk quietly with the counselor, to tell him what is bothering him, to identify with him and without other witnesses the best solutions to his problems.

4 Conclusions

The purpose of counseling is to provide support to people in need to adapt to new living conditions, to find solutions to situations and problems they face regardless of their nature: material, emotional, family. The essence of the counseling process involves two essential steps: 1) creating the link between the counselor and the counselor and 2) facilitating change based on a working alliance.

The present research revealed the following aspects, regarding the exercise by the teacher of the role of counselor:

- the direct beneficiaries of the counseling activities are first the students (100%), then the parents and teachers;
- at the top of the problems for which the teachers participating in the research carry out psycho-pedagogical counseling activities are the learning difficulties (75%);
- all the interviewed teachers stated that they carry out individual counseling activities (of students, parents, teachers), complemented by personal development activities (22.62%) and family counseling (16.67%);
- 67.87% of the professors participating in the research characterize the counseled people with whom they worked as cooperators;
- in the opinion of 38.10% of the teachers participating in the focus group, empathy is the most important quality of a counselor teacher;

- one of the most important challenges of the counseling activity during the pandemic with COVID-19, for 84.52% of the teachers participating in the research, is the promotion of health and well-being among students, teachers, parents, etc.;
- the main limitation of the psycho-pedagogical counseling relationship developed by the teacher during the pandemic with COVID-19, according to the opinion of the teachers participating in the research, is given by the nonverbal behavior which is much more difficult to observe, analyze and interpret in online activities (52, 38%).

The teacher by exercising his role of counselor is concerned to maintain permanent collaboration with students, parents, other teachers to support the student in his training / development as an autonomous, creative, responsible personality, aiming to achieve an effective educational partnership, aimed at maintaining a harmony and balance in the school or family environment, to ensure an educational optimum.

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