



Beyond reductionism – Multidisciplinary Insights Approach for an effective climate change and sustainability policy

Andrzej STRZAŁKOWSKI

University of Warsaw, Poland

Abstract: Climate change and other sustainability problems represent unprecedented challenges to humanity today. Because of such challenges there is a need for fundamental social changes of current unsustainable society. There is essential advanced interdisciplinary scientific contribution for informing policy interventions. However, so far the state of development of this agenda is definitely insufficient. Scientific and policy discourse concerning climate change and sustainability is dominated by natural sciences, technical, and economic perspectives, while many crucial social sciences, especially sociology, anthropology, and ethnography are marginalized. Unfortunately, development of sustainability science and behavioural insights (behaviorally informed interventions, BIP) do not compensate this cognitive gap which could result in considerable ineffectiveness of current climate change and sustainability policy. From the observation that inconsiderate deepening of integration of various perspectives could lead to dramatic reduction in their explanatory power author moves to potential ways to diminish such threats and simultaneously successfully combining perspectives from different disciplines. Thereby, he proposes Multidisciplinary Insights Approach as a platform for practical collaboration between scientists from different disciplines and as a theoretical approach for developing more balanced and heterogeneous multidisciplinary agenda. The application of MIA was presented with the use of social practice theory, COM-B, and a couple other perspectives on the example of eating practice. This example showed that practice theory could be successfully used in indicating the general targets of interventions while the behavioral COM-B in detailed these interventions – all of these without excessive violations of both paradigms.

Keywords: Social practice theory, behavioural insights, COM-B, interdisciplinary, sustainability transitions

JEL codes: Z13, D03, E03, Q58, P41

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1. Introduction

Over the years, scientists have provided different perspectives to support adoption,

implementation, and evaluation of climate change and sustainability policies. Although this contribution in many ways is impressive, I would like to argue that the development of heterogeneous and balanced interdisciplinary scientific background for practitioners and decision-makers is highly insufficient (Strzałkowski, 2016). This is especially true taking into account the unprecedented and huge scale of the global threats facing humanity today. Moreover, development of such perspectives as sustainability science (Komiyama and Takeuchi, 2006) or behavioral insights (understood as an approach to policy interventions rather than a distinct scientific discipline; see, e.g., World Bank, 2015; Behavioral Insights Team, 2016; EC, 2016; OECD, 2017) is not an appropriate response to these shortcomings. It is caused by the fact that they often camouflage poor diversity and marginalization of many important disciplines and perspectives, which goes unnoticed by scientists dealing with, for example, sustainability science who treated deepening such theoretical interdisciplinarity only in a positive way (see, e.g., Esler et al., 2016: 77 or Palmer et al., 2016: 111).

To put it bluntly, the current political and scientific discourse concerning climate change and sustainability is dominated by natural sciences, technology, and economics (Brulle and Dunlap, 2015 or a quick review of IPCC, 2015: 93-112). Recently, also psychology has been strengthening its position through behavioral economics and behavioral insights (also as behaviorally informed interventions, BIP, Olejniczak 2015), but it is rather too much to say that it has a dominant position. Moreover, such perspectives as NUDGE (Thaler and Sunstein, 2008) or MINDSPACE (Dolan et al., 2012) which dominate in behavioral insights can make a false and very dangerous impression that to change human behavior to an indispensable extent, to face such threats as climate change or loss of biodiversity, it is sufficient to use a very limited set of psychological tools which these perspectives offer (Michie and West, 2013). It is especially alarming when it comes to NUDGE which has a clear ideological and political background. Sometimes it is stressed that behavioural insights is not panacea and that it should be combined with more traditional policy tools (EC, 2016: 11-12). However, the analysis of recent reports of behavioural insights suggests that they are dominated by isolated case studies and integration of them with a broader policy is still insufficient (EC, 2016; OECD, 2017).

All of these observations should draw attention to more comprehensive psychological and behavioral frameworks which tend to use full potential psychology and offer a broad set of interventions like presented in this paper COM-B (Michie and West, 2013). However, what is

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worth stressing, although COM-B is a more open and comprehensive approach it has mainly the psychological character. It results, for example, in rather individualistic perspectives and setting behavior as the main unit of analysis. Therefore, other perspectives are essential to formulate an effective climate change and sustainability policy, for example, that of sociology.

When it comes to sociology (understood also as very qualitative disciplines such as anthropology and ethnography), although it proposes very distinct and potentially fruitful perspectives with various formulations and explanations of social phenomena, it plays a marginal role in the scientific and political discourse concerning climate change and sustainability (Hackmann and Clair, 2012: 9-12; Bjurström and Polk, 2011). It has been also marginalized in influential sustainability science (like psychology and macroeconomics, Brulle and Dunlap, 2015) and excluded from more and more popular behavioral insights (Shove, 2010). It is a worrying situation, especially because it is sociology that is far more successful than natural sciences, technology, economics, and psychology in indicating the very broad and huge scale of social change which is essential in order to face a climate change and other sustainability problems. It is also, contrary to the individualistic view of economics and psychology, much more capable of analyzing broad social structures and indicating ways to their change. It is because broader social structures are not essentially results of aggregation of many individual behaviors (as well as individual behaviors are not completely determined by social structures). Sociology, anthropology, and ethnography also provide very distinct qualitative methodologies which may show new perspectives of modern problems and indicate innovative ways for policy interventions.

Moreover, use of sociology (see, e.g., Leicht, 2016; Hall, 2013; Cohen et al., 2013) and broad psychological perspectives (like COM-B) may help to constantly understand that there are no easy or ‘magic’ ways to, for example, effect a modal change in transport, limit flying, reduce consumption or inequalities and instead needed there are broad structural changes which probably will be politically inconvenient and disturbing for many interest groups. Unfortunately, current neglect of such perspectives in the mainstream of scientific and political discourse can result in maintaining “business as usual” *status quo* and considerable ineffectiveness of interventions challenging climate change and sustainability problems.

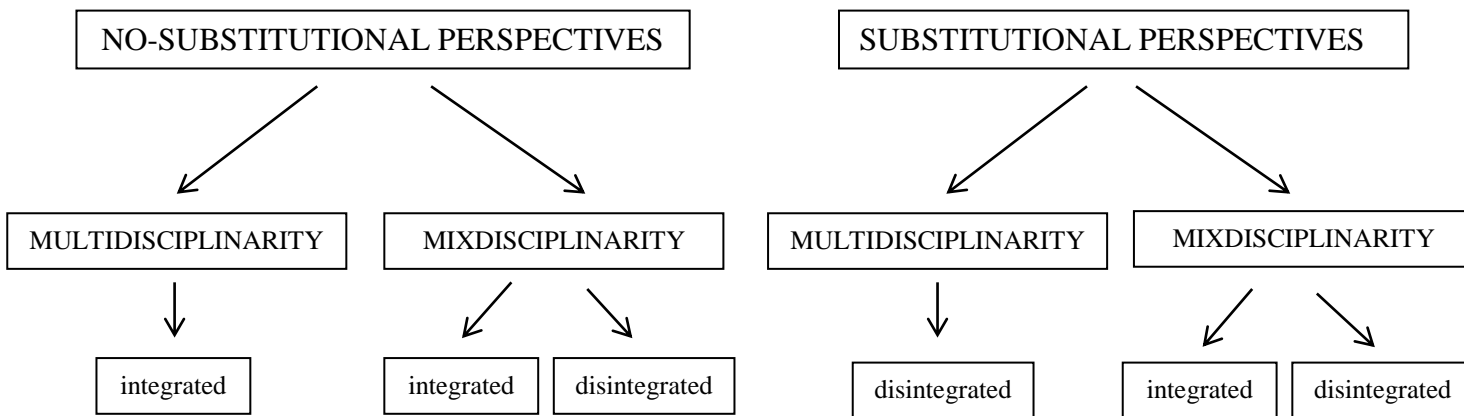
In this article, I would like to address all these problems and propose Multidisciplinary Insights Approach as a new platform for practical and theoretical collaboration between

scientists. It is not a new traditional paradigm or a theory, but rather a loose and flexible set of guidelines, whose most important aim is to encourage and enable scientists to talk to one another. Therefore, it distinguishes and stresses deep differences between various disciplines and perspectives and offers different theoretical formulas for interdisciplinary collaboration. Such formulas include multidisciplinary approaches which maintain all differences between perspectives (especially problem formulations emphasized by Shove, (2011)). They also include mixdisciplinary approaches which allow modifying some elements of perspectives but with securing as much multidisciplinary as possible to achieve integrated problem formulation and explanation.

2. The problems with ‘interdisciplinarity’

Although the concept of ‘interdisciplinarity’ is not new, it still kindles discussions (see ABC discussion: Shove, 2010; Withmarsh, O’Neill et al., 2011; Shove, 2011; Wilson and Chatterton, 2011; Boldero and Binder, 2013). Today, arguments for developing interdisciplinary perspectives are appearing very often but there are also quite skeptical voices (Shove, 2011). All of this can take place due to the fact that *interdisciplinarity* can mean various things for different people

Diagram 1. Possible kinds of interdisciplinarity



Source: Author’s own work.

and not everyone is willing to accept a certain kinds of this idea. For this reason, I divide interdisciplinarity into various kinds. Firstly, it could be helpful to distinguish *theoretical interdisciplinarity* which means using perspectives (that are paradigms or theories) of various disciplines, like creation of behavioral economics from neoclassic economics and psychology.

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The second kind is *practical interdisciplinarity* which only means actual collaboration between scientists representing various disciplines, like organizing joint meetings or talking via Skype. To simplify, using different perspectives of the same disciplines or actual collaboration between scientists representing different perspectives of the same discipline (which is important in multiparadigmatic disciplines like sociology) I name also as interdisciplinarity although they rather should be called the *multiparadigmatic approach* which is a broader notion.

Theoretical interdisciplinarity, in turn, could be divided into *mixdisciplinarity* and *multidisciplinarity*, and many current scientific discussions concern actually this division. The difference between them is that mixdisciplinarity violates the independence of paradigms or theories it uses, whereas multidisciplinarity does not do this. I understand violation very broadly which would include not only modifying any elements of certain perspective, but also using one perspective through lens of another (at least partly). Mixdisciplinarity is inevitable when two (or more) perspectives are at least partly substitutional in formulation and explanation of certain problems (like neoclassical economics and psychology, both of which propose formulation and explanation of human behavior, but often these formulations and explanations are different) and we want to integrate these in a perspective (*integrated approach*) which always offers one kind of formulation and explanation (because potential contradictions and incompatibility have to be eliminated by violating one or both perspectives). However, we can also multidisciplinary use two substitutive perspectives but then we must accept potential various formulations and explanations of problems (*disintegrated approach*). In the case of not substitutive perspectives, they can be used in the multidisciplinary integrated way as well as in the mixdisciplinarity integrated or disintegrated way (like economics and technology).

A good example of the mixdisciplinarity integrated approach is behavioral economics. Although it uses neoclassical economics and psychology (substitutional perspectives), it has been modified both because neoclassical economics has been stripped from the pure “rational actor” element when psychology perspective has been limited to appropriate extent. As a result, behavioral economics is not a simple entity constituted from neoclassical economics and psychology but it is a new mixdisciplinarity perspective which has modified the both perspectives it used. An example of the integrated multidisciplinarity is the use of economics and technology (non-substitutional perspectives). For the reason that the both disciplines have different fields of interest they can be used in parallel without mutual violation. For example, technology can invent

a new type of wind power plant when economics can measure its cost and calculate the the level of subsidies essential to make it competitive. These two disciplines, in principle, do not substitute each other in their tasks, when psychology substitutes economics in explanation of individual behavior (and *vice versa*). It is the effect of the mixdisciplinary character of behavioral economics.

When it comes to the current formulations of interdisciplinarity, its development is unfortunately very limited. When the multidisciplinary integrated approach based on natural sciences, economics, and technical sciences is advanced and broadly used, the tendency to develop a more multidisciplinary approach is, in my opinion, rare in the field of social sciences. However, there are quite influential mixdisciplinary perspectives, like sustainability science or behavioral insights, still they also have very serious limitations. Sustainability science is dominated by natural sciences, which leads to marginalization of sociology, but also psychology and macroeconomics (Brulle and Dunlap, 2015: 5-8). The case is similar when it comes to behavioral insights. Firstly, there is the excessively exposed NUDGE perspective which is strongly criticized from both psychological (Michie and West, 2013) and sociological perspectives (Hall, 2013). Secondly, there is not almost any sociological view which also is criticized by sociologists (Shove, 2010). Consequently, such perspectives as sustainability science or behavioral insights make only a false ‘impression’ that they adequately represent social sciences, but in fact they do it extremely selectively. In the end, scientific and political *status quo* that means domination of individual, economic, technical, and natural sciences’ view is sustained (Brulle and Dunlap, 2015: 5-8; Shove, 2010).

To avoid the ‘illusion’ of representing *all* scientific perspectives I will not use the aforementioned mixdisciplinary perspectives as *primary* units for management of scientific knowledge and I propose to use the primary names of basic *disciplines* like natural sciences, technical sciences, economics, psychology, and sociology (as mentioned, including anthropology and ethnography). The presented disciplines are, in my opinion, most intuitive and easily handled by both researchers and practitioners. I think that the notion of ‘social sciences’ may be particularly misleading because it is very general and thus may be use for defining all or only few of social disciplines. The point is we should respect the terminological and methodological integrity of disciplines like psychology and sociology but this does not mean that mixdisciplinary frameworks are not useful or fruitful. However, they should not be treated as representing *all*

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social perspectives when in fact they are limiting psychology and excluding sociology. To sum up, the starting point is *firstly* to understand terminology, methodology, paradigms, and theories of such disciplines as economics, psychology, and sociology and *later* to construct mixdisciplinary or multidisciplinary approaches, and essentially consciously describe disciplines used in the both approaches. Then, it will be clear what perspectives in them are privileged and what is marginalized or excluded. This clarity is essential both for researchers and for practitioners.

3. Multidisciplinary Insights Approach (MIA)

As I mentioned in Section 2, when it comes to no-substitutional perspectives (technical and natural sciences for others and *vice versa*) multidisciplinary is possible only in an integrated approach. This is, however, a very fruitful situation because multidisciplinary use of technology, natural sciences, and economics – on the one hand – allows fully utilizing the potential of perspectives of each of these disciplines. On the other hand, it results in achievement of one kind of problem formulation and explanation (because these three disciplines are compatible and complementary but not substitutional). The situation is less ‘beneficial’ in the case of social sciences’ impact on each other. Economics, sociology, and psychology offer substitutional perspectives and thus these perspectives can be in multidisciplinary way only in the disintegrated approach and thus there would be a number of different kinds of problem formulations and explanations which are not fully (or at all) compatible and complementary. The integrated approach is only possible in mixdisciplinarity use but this approach needs modifications of using perspectives which violate their independence and can reduce their cognitive and practical potential (like, for example, in behavioral economics, sustainability science or behavioral insights), which was strongly criticized by Shove (2011).

Now, I would like to propose the Multidisciplinary Insights Approach (MIA) as a new basis for research and informing policy which is quite different from mixdisciplinary frameworks dominating in the mainstream of social sciences concerning climate change and sustainability. MIA is not a new closed and exhausted paradigm or theory, but rather a loose and flexible set of guidelines for parallel or joint use of different perspectives. It assumes that practitioners in climate change and sustainability field (and not only) do not need a rigid model for their work, but rather the way in which they could selectively, parallel, or jointly use various perspectives. In this case, the role of scientists is not to contribute an overwhelming model or a theory, but to

contribute a number of diverse perspectives which are simply presented and which could be used by practitioners to look at their problem in different ways. What is also important, scientists representing certain disciplines, as far as possible, should draw the practitioners' attention to perspectives of other disciplines.

MIA assumes essentiality practical as well as theoretical interdisciplinarity. However, this is not by development of the mixdisciplinary integrated approach, but through a multidisciplinary approach as it is *possible* and *affordable*. This could mean practical interdisciplinary collaboration between scientists in the theoretical formula of disintegrated multidisciplinary like, for example, studying the same problem from distinctive economic, psychological, and sociological perspectives, and later presenting together these different results to practitioners. Such an approach, although it does not contribute one integrated proposal, may be very useful for practitioners because it contributes a diverse set of intervention ways which is well shown in research conducted for Department of Environment, Food and Rural Affairs (DEFRA, 2011) and was promoted by Shove (2011: 264). However, sometimes most affordable will be the integrated approach, therefore MIA allows using also the mixdisciplinary approach but then multidisciplinary has to be as much secured as it is possible.

Following the example of constructivist grounded theory of Kathy Charmaz (2006: 2, 9) in this approach there are general and flexible *guidelines* rather than rigid rules. It means that MIA encourages to follow its guidelines, but it depends on the individual scientist or practitioner to what extent she/he will be able to do it. However, total neglecting of the guidelines results in actual rejecting of MIA. Now, I will present general guidelines of MIA and briefly describe them. The guidelines include as follows:

1) a scientist or practitioner should talk, try to understand and collaborate with their colleagues dealing with different disciplines and perspectives,

2) a scientist or practitioner should apply a heterogeneous set of perspectives, including at least one perspective of sociology and one of psychology,

3) a scientist or practitioner can use different perspectives selectively, parallel or jointly, however they should not use them in the way that violates their independence,

4) a scientist or practitioner using a perspective should do it independently from other perspectives, especially they should not use one perspective through lens of another,

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5) a scientist or practitioner, when it is affordable, can partly violate guidelines 3 and 4, but then, they should as far as possible realize these rules in the other aspects.

Ad 1. As mentioned in Section 2, without real collaboration and understanding between scientists from different disciplines and representing different paradigms or theories it is not possible to construct deliberative multidisciplinary or mixdisciplinary approaches. Collaboration between scientists may have also a positive effect on widespread of less popular disciplines like sociology or psychology. Such collaboration and understanding may be developing through, for example, participating in interdisciplinary scientific groups associating sociologists, psychologists, economists, technical, and natural scientists, anthropologists, ethnographers, lawyers, or managers. A good example of such collaboration is the interdisciplinary research group from New Zealand which works with energy cultures framework (Stephenson, Lawson et al., 2010). What is important, the general aim of MIA is allowing and encouraging collaboration between scientists, therefore it depends on scientists' preferences whether they use the integrated mixdisciplinary approach or only the multidisciplinary approach with disintegrated various problems formulation and explanations. Such an open approach allows collaboration even between very different perspectives, like reformist, revolutionary and, reconfiguration positions in sustainable production and consumption research (Geels, McMeekin et al., 2015). The first guideline could be called the human dimension of MIA and it is fundamental for the whole approach.

Ad 2. Climate change and sustainability policy have been traditionally informed by natural sciences, technology, and economics. Nowadays, behavioral insights approach is also being gradually included in the policy-making process. However, via MIA's lens this set of disciplines is not the best possible. That is because the perspectives used should be much more heterogeneous, as for example individualistic and collective, with quantitative and qualitative methodologies, rational and irrational, mechanistic and conditional, as well as materialistic and immaterialistic. Though behavioral insights concept is not so rational, mechanistic, and materialistic like neoclassical economics and technical studies, it is yet individualistic to a considerable extent. It would result in a significant cognitive gap, as noted, for example, by Riley and Dunlap (2015), and that is why at least as one perspective of sociology and one of

psychology should be included. In the table below I presented crucial differences between psychological and sociological perspectives with simplification and reduction.

Table 1. Crucial differences between psychological and sociological perspectives

PSYCHOLOGY (e.g. behavioral insights, NUDGE, COM-B)	SOCIOLOGY (e.g. practice theory, energy cultures framework)
1) focuses on universal, biological-cognitive mechanisms of people’s behavior,	1) focuses on specific social practice/structures which have social origins and vary among countries, regions and social groups,
2) tends to keep internal, individual, and small groups’ perspectives,	2) tends to keep external, collective and huge groups’ perspectives,
3) contributes a lot of universal advice, which is detailed,	3) contributes little universal advice which is general,
4) implementation of advice usually does not need additional, systematic research,	4) implementation of advice usually needs additional, systematic research,
5) usually do not contribute holistic vision on social relations and recommendations for deep, complex and long-term policy interventions,	5) can contribute a holistic vision on social relations and general recommendations for deep, complex and long-term policy interventions,
6) usually contributes handy and direct ways for policy actions.	6) usually contributes general ways for policy actions which need specification.

Source: Author’s own work.

Ad 3. This guideline means that a scientist or practitioner should not pull out elements from one perspective and/or add elements to another. Usually, paradigms and theories constitute complete entities and their explanatory and implementation power often derives from all of their elements. Removal or addition of new elements could reduce this power. The sustainability science stream could offer an example of this (Riley and Dunlap, 2015). Although it tried to combine natural sciences, technology, economic, and social perspectives, it is dominated by natural sciences and systems perspectives which exclude many of sociological paradigms and theories.

Ad 4. The guideline concerns, in particular, the stage of using various perspectives in practice. It warns of the privilege of one paradigm or theory relative to the other, which could result in thinking through lens of the first paradigm or even using another. It is important to stress that each paradigm, theory, or approach has its own assumptions, methods or rules and it needs to

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“shift” the mind from one paradigm to another, which could not be easy. However, it is essential when we want to utilize the whole potential of each approach.

Ad 5. As I have mentioned, because social sciences can be used substitutionally there is no way to use them without violating them and simultaneously achieving integrated problem formulations and explanations. However, sometimes the integrated approach is affordable and that is why MIA allows partly violating rules no. 3 and 4. However, despite this, in a mixdisciplinary version of MIA (which results from using social sciences in integrated way) multidisciplinary should be saved as far as it is possible to achieve the affordable integrated approach. “As far as possible” this may include choosing such perspectives that are less substitutional than others (to reduce the extent of modifications) or modified perspective in the way least modifying core elements of certain paradigm or theory.

What it is also worth stressing, in constructing the mixdisciplinary approach it is essential to justify why one perspective has been used when another has not, and what modifications have been made, and how these two things result in formulation and explanation of problems and for practical use of them by practitioners. MIA is distinct from such approaches as the mentioned energy cultures framework (which also tend to be a platform for interdisciplinary collaboration) because it does not propose any *a priori* traditional paradigm, but only some guidelines (which actually also are a part of such a paradigm but which rather tend not to interfere very much in other scientific paradigms). Instead, energy culture framework seems to be a paradigm which integrates and uses various other perspectives but by lens of energy cultures theory and thus it could be used in MIA but only as one of a number of perspectives.

4. MIA of practice theory and COM-B (MIA-PC)

Following the guidelines presented in Section 3, I propose a version of MIA based on practice theory (Shove et al., 2012) and COM-B framework (Michie and West, 2013). It could be named MIA-PC (**P**ractice theory and **C**OM-B). Despite the name, MIA-PC also uses economics (including law and economics, see, e.g. Bougherara et al., 2005), legal studies, technical, and natural sciences. Practice theory is one of the sociological paradigms which are developing toward practical adoption. Although there are other sociological perspectives oriented toward application in sustainability policy like especially cultural energy framework (e.g. Stephenson et

al., 2015) or multi-level perspective (e.g. Geels, 2012), I prefer practice theory for its simplicity, flexibility and advance as well as strong explanatory power and huge practical potential.

On the other hand, COM-B is the framework originating mainly from psychology, especially from behavioural insights. I borrow the idea about using it as framework to integrate psychological and behavioral research from Olejniczak et al. (2016) who used it complemented by concepts of decision-making heuristics, resources, rules, and barriers to behavior. In behavioral insights, there are also other frameworks like NUDGE, MINDSPACE, STEER or THINK (Olejniczak and Śliwowski, 2015), but again COM-B, with its comprehensiveness and flexibility, stands out from others. The main aim of this framework is to present practitioners with an open and broad scale of possible intervention in human behavior (Michie and West, 2013).

In the MIA-PC, practice theory is used completely independently, which means that rules number 3 and 4 are fully applicable to it. The role of practice theory is to generally formulate problems, explain of them, point out targets for interventions (e.g. in space and time), and shape the general character of interventions. When use of any other perspectives included in MIA-PC is incompatible with practice theory, then they can be modified. This means that psychological COM-B can be modified or influenced (as well as economics and legal studies) to ‘craft’ them to practice theory.

MIA-PC has thus the mixdisciplinary integrated character; however, with respect to rule number 5 of MIA, the multidisciplinary of MIA-PC has been strengthened because practice theory does not have its own propositions for detailed intervention like COM-B (Blue et al., 2014: 10-11). Thereby these two perspectives are not substitutional in this field and thus COM-B can be used independently in the details of intervention (but these details have to be placed within the ‘frames’ indicated by practice theory). COM-B has also the substitutional character and selected economic perspective (e.g., behavioral or neoclassic). In this case, psychology is independent from economics, but economics can be modified or influenced by COM-B (for example, COM-B automatically ‘derogates’ the rational actor theory from neoclassic economics).

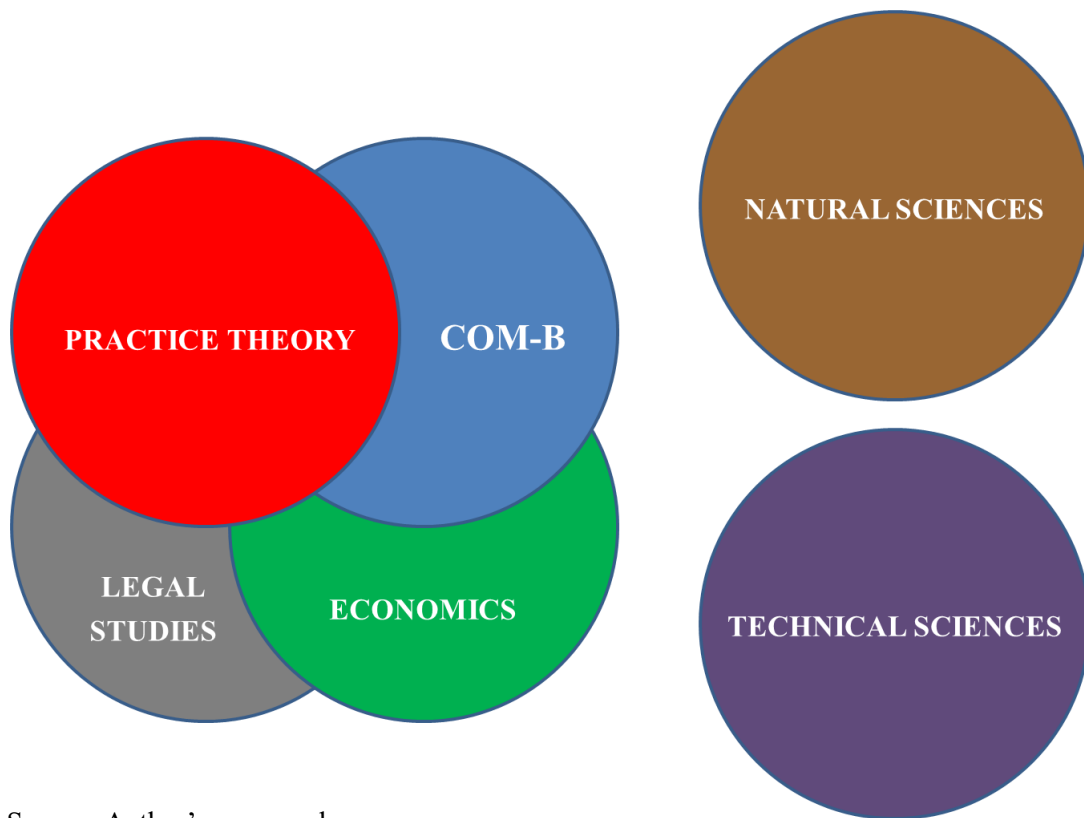
Consequently, legal studies could be modified by all other perspectives. However, technical and natural sciences are no-substitutional for all other used perspectives and thus they can be easily used in a multidisciplinary way. The primacy of practice theory above other perspectives (and COM-B above others, despite practice theory) can be understood similarly as

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a legal conflict rule *lex superior derogate legi inferiori*. It means that legal acts should be consistent with constitution and executive decrees should be consistent with legal acts.

The overlapping circles on Diagram 2 present relations between different perspectives in MIA-PC. As an example, the blue field on the ‘economics’ does not mean that economics will be inevitably excluded from analysis and formulation of intervention in this part because it could only be modified or influenced. For example, the rational actor theory could recommend raising the price of a product, but psychological COM-B could modify this advice to decrease the price. Economic intervention has been changed, but the idea of pricing has not been excluded.

Diagram 2. Rules of precedence between perspectives in MIA-PC



Source: Author’s own work.

Similarly, economics can be influenced by practice theory via pointing out a target for economic intervention which economics itself would not point out in this case (the red field on the ‘economics’). Pointing out intervention targets would not influence technology. It is because technology itself does not concern targeting social life directly but, for example, constructing devices.

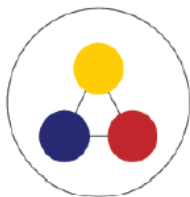
To sum up, this approach tends to offer as much independence for various perspectives as possible with the simultaneously integrative character. What is also worth emphasizing, the fact that this approach uses, on the one hand, sociological practice theory and, on the other hand, behavioural insights and economics, allows utilizing potential of perspectives which are sometimes opposing. That is in the case of reformist position, which is in a great part based on economics and social psychology and reconfiguration position, which uses practice theory and multi-level perspective (Geels et al., 2015). At the same time, MIA-PC uses practice theory as ‘strategic’ perspective which is consistent with recommendation of Geels et al. (2015) who argue that such a kind of perspective is most appropriate to inform of a social change in the climate change and sustainability context.

Practice theory role

Practice theory is a sociological paradigm which has the origins (Shove, 2014) in works of such authors as Anthony Giddens (1984), Pierre Bordieu (2013) or Theodore R. Schatzki (2003). The primary unit of its analyses is social practice which is a theoretical construct consisting of “active integration of material, competence, and meaning” (Shove et al., 2012: 5, 24).

This means, that visible behavior like cooking in the kitchen is not a practice understood as theoretical construct and the main focus of this theory, but only *performance* of such a

Diagram 3. Elements of social practice



Social practices are made of different elements. Shove et al (2012: 23) suggest there are three types of element: material, competence and meaning.

materials	Objects, tools, infrastructures
competence	Knowledge and embodied skills
meanings	Cultural conventions, expectations and socially shared meanings

Source: Spurling et al., 2013: 20.

practice. A practice as a theoretical construct is an *entity* constituted by material elements (pots, frying pan, kitchen as a room), competences (cooking skills, reading recipes) and meanings (the sense of taste, healthy food concept) which are repeatedly linked together, interconnected and

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shaping each other (Shove et al., 2012: 25, 33). Just these theoretical entities aim to explain human behaviors as performances of them.

For example, car-driving which is constituted by materials like cars, roads, parking, petrol stations, car washes or service stations can be understood as a practice; driving skills, reading road signs, or knowledge of the city plan – as a competences, whereas the car as a status symbol, wearing seatbelts as civic responsibility, or treating car-driving as comfortable and time-saving means of transport – as meanings (Spurling et al., 2013: 20; Watson, 2014: 120-121). In a broader perspective, car-driving can be understood as a *compound practice*. It means that car-driving would be treated not as one, but as a number of different practices like driving a car, production of cars and oil extraction, each constituted by materials, competence, and meanings (Warde, 2014: 24-25). Visible behavior of car-drivers on the streets is not practice itself but performance of a practice that a renewals of three presented elements. That is why there are possible changes in a number of performances, frequency and spatial range of these performances, but practice as a theoretical entity will remain essentially the same (Hui, 2014: 91-92).

Despite the broad description of practices by their elements, this approach also seeks an answer to the questions about how practices emerge, exist and die, about how they recruit practitioners, how bundles and complexes of practice form, persist and disappear and finally how elements, practices and links between them are generated, renewed and reproduced (Shove et al., 2012: 14). It is these questions, which are crucial for a climate change and sustainability policy, because they concern the fundamental ways of modern societies' lives that various studies of practice theory have tried giving answers to. They include, for example, car driving and infrastructure (Shove et al., 2015), eating (Southerton et al., 2011), using energy efficient light bulbs and making low temperature laundry (Mylan, 2015), thermal energy (Shove et al., 2014) or using air conditioning (Hitchings, 2011).

When it goes to policy interventions, it is worth emphasizing that authors of this approach do not suggest intervention in behaviors of individuals but in social practices which are understood as mentioned above. Moreover, holding individuals responsible for an unsustainable way of life is often criticized because practice theory assumes that individuals are strongly influenced by social practices they participate in. As a result, instead of holding responsibility

individuals should have “rights” to sustain practices which means, for example, appropriate infrastructure, training, etc. (Walker, 2015).

Spurling et al. (2013: 22-27) have proposed also three practical strategies for public interventions in social practices. They include re-crafting practices, substituting practices and, changing the way practices interlock. The first strategy suggests making modifications in the elements of practice. It does not mean elimination of unsustainable practices like for example car-driving but changing or replacing these elements with more sustainable ones. In the case of car-driving it may involve bringing electric cars (materials), teaching fuel-efficient driving (competence), or promoting driving together as more entertaining (meanings). What is important, the authors have stressed that practice perspective suggests intervening in a multiple kind of elements at the same time, since this is likely to be more effective.

On the other hand, substituting practices strategy suggests eliminating unsustainable practices and simultaneously replacing them with more sustainable ones. Development of cycling in Groningen (the Netherlands) is a good example of it (Watson, 2014: 126). The city’s authorities have systematically introduced car-restrict instruments, developed cycling infrastructure and favored cyclists at the expense of drivers. It might explain why, almost 40% of the local trips are made on bikes which have become a regular very common means of transport.

The last, powerful proposed strategy is based on changing the way in which various practices interlock and cooperate with others. For example, car-driving should not be viewed as a separable practice, but rather the result of a broad system of practices which produce a need for car-driving. These need may result from the need of household provisioning, going to school, work, or leisure. Therefore, intervening in the use of cars may be based on intervening of interconnections of this and other practices. The case of Liverpool Central Library will shed more light on this. The library is a multifunctional place which includes places for work, meeting rooms, game areas, electric points, internet, and print facilities and thus makes various activities possible for people. Such a solution consequently might reduce weekly commutes. This strategy also assumes that “policy makers have an obvious role in bringing existing actors together (i.e. businesses, manufacturers, marketing organizations, retail outlets) as part of a deliberate strategy to reconfigure the character and the distribution of the elements of which more sustainable practices *could be* made, and in seeking to break the ties that hold other less sustainable arrangements in place.” (Shove et al., 2012: 161)

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The practice theory provides also helpful observations about the role of the state in sustainability and general character of public policy in this area. On the one hand, it is important to stress that encouraging citizens to make more pro-environmental decisions may downplay the great role of the state in sustaining unsustainable practices, institutions, and structures. On the other one, we should be aware of transition of management thinking because in extremely complex reality public policy should not be based on setting a target, making a plan of action and consequently realizing it but rather “moving towards always-moving targets” (Shove et al., 2012: 162, 164).

Moreover, this perspective, contrary to many others, does not describe interventions and social life in categories of top-down or down-up or like multiple “levels” of governance and interventions. It assumes that social life is inherently “flat” and there are not any “levels” but bundles and constellations of interlinked social practices which are spread in the space and time. For example, the central government is not ‘higher’ than local governments but they have different spatial scales of influence. In the case of intervention, however, both central and local agencies act next to each other and on the same “level” (Schatzki, 2015).

The practice theory may also be complemented by ethnographic studies like for example a very interesting study of “flows” which shows that people manage flows like temperature, traffic noise, humidity, and smells to “feel right” in their homes (Pink and Mackley, 2015). Such subtleties may be hard to notice through behavioral insights, although they could be very important for social practices (and their performances that is human behaviors). The case is similar when it comes to unintuitive ideas of utilizing memory of practices (like human experience) performed in crisis times like droughts to promote sustainable management of resources (Maller and Strengers, 2015).

To sum up, the practice theory is a wonderful perspective to analyze the broad range of interactive structural-agency practices which constituting a modern society and thus formulatings crucial targets and the general shape of strategic interventions that take into account constant dynamics of social practices.

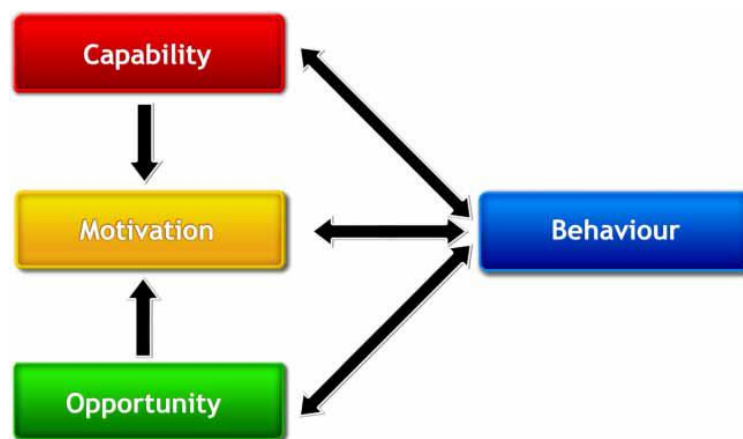
COM-B framework role

COM-B (as an acronym for “capability-opportunity-motivation-behaviour”) is the framework formulated by Susan Michie and Robert West (2013), which aims to support policy makers and

scientists in applying psychological knowledge to practice. The authors, as ones working in the public health field, have very strongly criticized the NUDGE framework, arguing that it is politically influenced and it is proposing a very limited and often ineffective set of intervention techniques. They even claim that “the ‘nudge’ approach pre-judges the key issues that should be considered in designing intervention strategy. Interventions need to be affordable, practicable and publicly acceptable but if they are not effective, they count for nothing. There is no substitute for a rigorous evaluation of relevant evidence and a systematic analysis of behavior in context in the light of evidence. If a government turns its back on interventions which evidence clearly shows are likely to be effective and which are affordable, practicable and carry public support, and instead they back interventions that derive from inconclusive evidence that is tangentially related to the behavior at issue but fits with a particular doctrine, human lives may be lost in their thousands.”

According to the authors, in the opposition to Nudge, the COM-B is a “systematic, comprehensive and theory-based approach to intervention development” that “should help policy makers to select intervention strategies that have a reasonable chance of being effective.” In general, COM-B, as its name suggests, assumes that human behavior is shaped by three factors – capability, motivation and opportunity. Capability can be physical (like physical skills, strength,

Diagram 4. COM-B



Source: Michie S. and West R., 2013: 6.

etc.) or psychological (capacity, knowledge, etc.). Motivation includes reflexive motivation (like planning, decision making, etc.) and automatic motivation (emotional reactions, habits, etc.). And

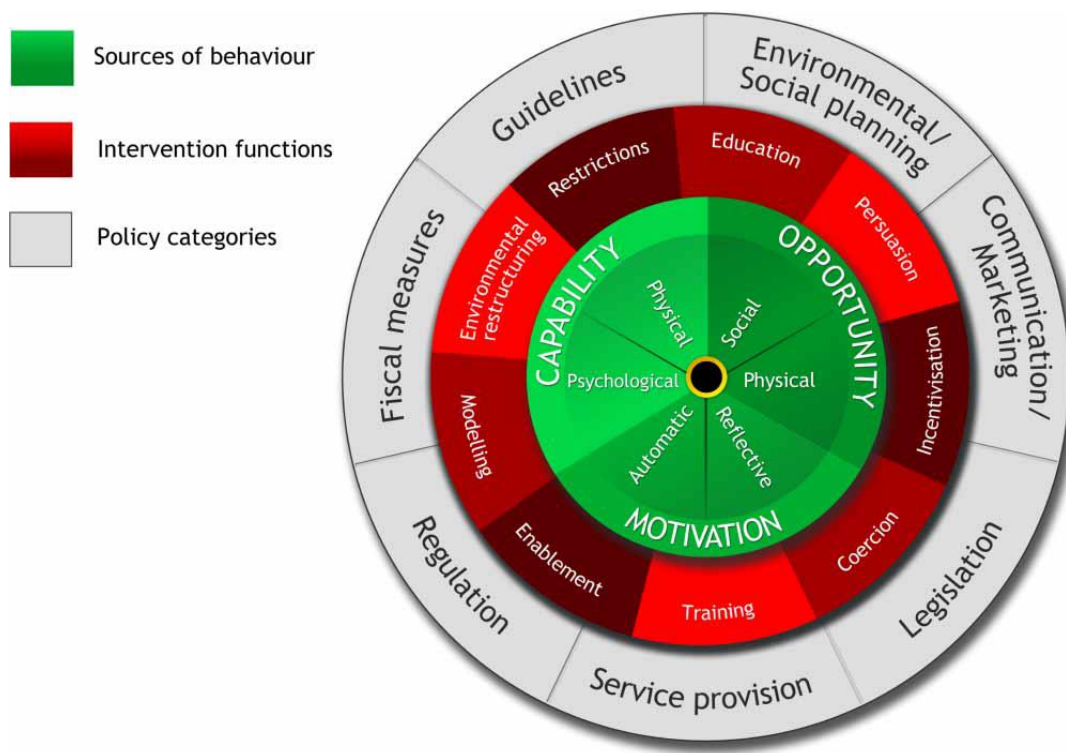
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last, opportunity can be physical (infrastructure, locations, etc.) or social (norms, social support, etc.). What is important, the concept of motivation, in this case based on PRIME theory, assumes that it can be influenced by capability and opportunity.

The analysis of intervention target population through lens of COM-B framework is the starting point for formulation of appropriate public intervention. The tool for framing actual intervention is the Behavior Change Wheel (BCW) which includes behavior change techniques (BCTs). The wheel, which is illustrated below, aims to support policy-makers in their analysis of target population and later to choose appropriate intervention functions, techniques, and policy categories. For example, if we want people to be physically active, they would need a physical opportunity to be so. Now, we can move on to the second (red) wheel and choose enablement intervention function and realizing it through service provision or environmental planning which means e.g. building gyms or developing green areas for running.

Intervention strategies in this theory could be understood as proposition of intervention in selected *sources of behaviour* by selected *intervention functions* emerged from *behaviour change techniques* (which may include techniques described in a huge number of various psychological

Diagram 5. Behavioral Change Wheel



Source: Michie S. and West R., 2013: 12.

and behavioral studies, e.g., World Bank 2015; EC 2016; OECD 2017) and through selected *policy categories*. With the help of COM-B and BCW we can formulate potential strategies of interventions in existing social problems, describing former public interventions as well as evaluate them. We can, for example, ask whether future or past intervention has targeted all of the sources of behavior, if it has chosen appropriate intervention functions and techniques or if it has used good policy categories.

And how to combine them?

Now, I would like to explain how one can use MIA composed of these two perspectives, which are based on two different paradigms and why it could be fruitful. The practice theory, if used, would indicate appropriate places, times, and general forms for specific interventions. For example, describing the practice of car-driving could provide suggestions which elements of infrastructure, competence, and meanings should be re-crafted or substituted to promote public transport and cycling. We could also recognize what other practices driving is associated and how these connections could be disrupted or changed to promote other forms of transport.

However, practice theory does not propose unique and detailed forms of interventions (Blue et al., 2014: 10-11) but general forms which however can be used on a very small scale (Strengers et al., 2015: 69-70). Their greatest power is the ability to recognize complex structures of social practices and to identify appropriate targets for intervention. To formulation of details of such interventions we can apply COM-B. It can be based, for example, on space architecture, use of social norms or habits theory to promote public transport and cycling. COM-B can indicate what additional resources and capabilities should be delivered to people and how to encourage them to use alternative means of transport.

When it comes to mutual influences between perspectives, it is important that practice theory must not be influenced by COM-B or economics (and COM-B by economics). It can be controlled by the iterative character, which of MIA means that after using practice theory and later COM-B, we can use practice theory again, later economics, COM-B, and so on. Most important is that practice theory must be fully independent; however, COM-B must be used fully independently, but within ‘frames’ constructed by practice theory (and similarly economics

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within ‘frames’ constructed by COM-B). Such guidelines result directly from the assumptions of MIA.

The role of economics, legal studies, technology, and natural sciences

MIA-PC proposes that economics, legal studies, technology, and natural sciences will be used in times and places marked by practice theory or COM-B, or when these four disciplines themselves mark the potential for complement practice theory and COM-B (in the case of economics and legal studies, it cannot influence practice theory and COM-B, though). This means, for example, the situation when practice theory points out targets for intervention in practice and COM-B formulates the need for using economic, legal, technological, or natural sciences tools. The inherent character of these tools will be formulated by these four disciplines. Moreover, natural sciences would formulate important problems connected with climate change or sustainability. In other words, these four perspectives will be used when economic, legal, technological or natural issues should appear or when these three disciplines ‘detect’ problems not detected by practice theory and COM-B (because they will be no-substitutional in this field) and this ‘detection’ and potential intervention will not influence practice theory and COM-B (when it comes to economics and legal studies).

There may arise some questions about the sense of such a hierarchy of disciplines in MIA-PC. However, it seems to be obvious that when it comes to climate change and sustainability *policy* the role of social sciences should be absolutely central (Brulle and Dunlap, 2015: 15-16). Additionally, sociology was especially exposed because actually it contributes the broadest social and structural overview of society and it is a good starting point for psychology which provides individual views. Consequently, psychology is rather an appropriate starting point for economics which focuses only on the one sphere of human activity, that is economic activity, and economics is the good starting point for legal studies *sensu stricto* which concern mainly law. Technology and natural sciences stand rather “next to” social sciences and using them in the of social change process should be indicated by social sciences.

If we look at legal studies, the situation is more complex because there could be distinguished disciplines interested in “law in the books” or “law in action” (Rhee, 2012: 303). Public policy, including policy of climate change and sustainability, is being shaped in its huge part through making or changing the law. Therefore, if an analysis conducted by MIA-PC

concerns a certain field of law, we could firstly identify law in the books, that is formal regulations in legal acts. For analyzing and systematizing of regulations we could use one of the positive legal theories, like Hans Kelsen's pure theory of law (1941) or Marcin Romanowicz's cognitive theory of legal interpretation (2012: 81). Then, we could concentrate our analysis on law in action, that is law understood as social phenomena rather than linguistic-logical system. Here, theories of sociology of law, psychology of law, and law and economics which are already included in MIA-PC (as parts of practice theory, COM-B and economics), could be applied. Moreover, law as social phenomena could be analyzed by practice theory as competence (policy makers knowledge about legal regulations) or materials (texts of legal acts on the Internet or in books). It is worth mentioning the fact that the additional legal element of MIA-PC is only a theory concerning law in books, because law in action is analyzed by practice theory, COM-B and economics (law and economics). And this *sensu stricto* legal theory concerning law in books in the field where it is substitutional have to be consisting of all other perspectives, that is practice theory, COM-B and economics (law and economics).

5. Using MIA-PC – the example of eating

The practice theory can contribute a broad social perspective which has not been delivered by psychology and behavioral insights. A great example here is the analysis of the practice of eating conducted by Southerton et al., (2011). This analysis showed that the practice of eating has been changing through time and currently in the West it is much more individualized and fragmented than in the past. The fact that many people eat different products, at different times, and in different places may result in more resource intensive character of this practice. Additionally, the practice of eating can also be understood as compound practice consisting of at least four integrative and quite autonomous practices, like supplying food, cooking, organization of a meal occasion, and aesthetic judgements of taste. This complexity may result in difficulties in coordination and social organization of eating (Warde, 2014). However, it does not mean that today eating is totally deregulated and free, but rather that there are more ways of eating than before. It may be caused by various factors like differentiation in working hours, “pressure of time” and possibilities offered by modern technologies (e.g., freezers, plastic boxes, or transport).

Despite all of these, there are some differences between countries when it comes to fragmentation of eating practice in time. While in Spain there are two “peaks” of eating when

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40% of the population eat lunch and 30% eat dinner in the UK there is no moment when more than 20% people eat simultaneously. These observations suggest that schemas of eating are not static phenomena and probably they are capable of being modified in the future.

Therefore, the authors suggested that intervention in order to re-craft time of eating in order to be more collective may result in energy efficiency and energy savings. This synchronization may also be connected with delivering local foods and reducing the use of freezers. Moreover, eating collectively with other people in canteens seems to result in more healthy diets comparing to individual decision-making eating (Kristensen and Holm, 2006:165-167). As a result, practice theory suggests that “pushing” eating practice to be done in a more collective way might result in smaller resources intensity of this practice. Interventions in this case may be based on delivering materials like school and work canteens, changing meanings to promote eating together and improve competence, for example, by delivering information about places and times to eat together.

Moreover, practice theory delivers a unique view on how different practices cooperate. This insight could shift attention from eating to other practices which influence and are influenced by eating. For example, changing study and working hours may support collective time of eating. Time of eating may also be synchronized with energy smart grids to manage energy consumption (about smart grids see: Bulkeley, Powels et al., 2015) as well as practices of commuting to reduce traffic (see, e.g., Liverpool Central Library case in Spurling et al., 2013: 22-27).

As I have mentioned, practice theory does not offer any unique techniques of interventions and rather borrows them from actual policies (but it can help in coordinating such policies). Traditional policy intervention, however, may be improved by using knowledge of psychology and behavioral insights. And at this point we can focus on COM-B framework. An example of intervention, proposed by practice theory, can be development and promotion of canteens. From the COM-B perspectives, people who are at work, despite the opportunity and ability to eat in the canteen must also have motivation to eat there. Habits are a possible example of automatic motivation (Michie and West, 2013: 9). In this case, the COM-B may suggest developing habits of workers to eat there. Psychological theory of habits says that they consist of cues which produce routine and which are ended by a reward. Rewarding is responsible for strengthening habits and when cues appear again, people may follow them to get a reward once

more (Weinschenk, 2013: 44-46). Moreover, Kahnemann (2011: 39-46) indicates that people tend to act automatically to save mental energy from an unnecessary activity.

Taking all of these into account, COM-B may suggest that eating at canteens should be as convenient as possible and this may include not only delivering information, but also delivering it in such ways that it could make going to a canteen easier. It may be achieved, for example, by intervention function of persuasion and policy communication by placing posters in appropriate places or displaying advertisements about canteens as places suitable for meeting with friends and finding love. Function modelling can be used by announcing information about the fact that bosses eat in the canteen, too. COM-B may also offer environmental restructuring through environmental planning which may mean placing canteens in such places that would be easily visible and accessible.

To sum up, psychological COM-B can cause detailed interventions to be more accurate and effective than traditional policies like, for example, merely delivering pure information. Of course, this is only the one example of detailed intervention. In the practice of eating, practice theory may point out dozens of various kinds of intervention that may be later detailed by COM-B, economics, legal studies, technology, and natural sciences, which could be later analyzed by practice theory once again. The same, iterative process may proceed during implementation and evaluation, similarly to that presented in World Development Report (World Bank, 2015: 193).

6. Conclusions

The aim of Multidisciplinary Insights Approach is to support efforts to build a more heterogeneous and balanced scientific contribution to informing climate change and sustainability policy. Such a contribution, if it is to be able to help inform about the necessity of social changes for sustainability, must represent a wide range of scientific paradigms and theories. However, I assume that it will not be possible if there is no integration between scientists just as individuals. Therefore, the starting point of any interdisciplinary collaboration should not be formulating a model or a theory but developing good relationships, understanding, broad participation, kindness, and friendship between scientists. In this process, researchers from heterogeneous disciplines, including – in particular – social sciences should participate to allow all of them to shape collaboration frames from the very beginning. It would be helpful in sharing scientific knowledge across disciplines and building such a base and rules for interdisciplinary

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collaboration that could be acceptable and affordable for all sides. Placing practical human collaboration and participation before developing actual theoretical research is the most important call of MIA.

The next contribution is emphasizing deep differences between various scientific perspectives, especially between natural sciences, economics, psychology, and sociology. However, these differences are not treated as barriers or problems but as a huge value. Such diversity of, impossible to integrate, perspectives is an irreplaceable tool for informing various difficult and nested problems facing mankind today, such as climate change, energy security, resources scarcities, loss of biodiversity, inequalities, poverty, health, and many others. It should be emphasized that enforced integration could lead to extreme reduction of the enormous scientific potential of various disciplines. That is why sometimes it could be better to take a multidisciplinary position and look at the problem from distinctive perspectives even without a single recommendation. This is especially true because some perspectives seem to be more capable of explaining certain problems than others. It shows why their integration could be rather harmful than fruitful.

However, it is not an argument against the integrated mixdisciplinary approaches but an argument for, on the one hand, more frequent using multidisciplinary perspectives and – on the other hand – for using mixdisciplinary approaches with consciousness of their serious limitations. Creators and users of the mixdisciplinary integrated approaches should, as much as it is possible, know the original versions of mixed perspectives, cognitive and practical consequence of such a mix, know which perspectives dominate and which are marginalized in these approaches. Moreover, there is itself a need to study problems and barriers in practical use of many social sciences (e.g. sociology, anthropology, ethnography, but also psychology) and to find solutions to integrate them into policy-making process (Strzałkowski, 2016).

The MIA proposed in this article, including its division of kinds of interdisciplinarity and 5 general rules, aims to support creation of interdisciplinary scientific projects and merit backgrounds for practitioners. Simultaneously, it tends to include heterogeneous disciplines and use its potential as much as possible. The possibility of using opposing paradigms together in mixdisciplinary way and with respect to MIA rules was presented on the example of use practice theory, COM-B and other perspectives on the social practice of eating. This example suggests that social practice theory could be successfully used in the indicating the general targets for

interventions (promoting collective eating, changing studying and working hours) and behavioral COM-B could be simultaneously used in detailing these interventions (influence habits and tendencies to choosing easiest options). Further contributions could make perspectives like economics and legal studies.

I hope that this work will shed more light and draw attention to essential shortcomings of current scientific contribution to climate change and sustainability policies and that it will help to build much more balanced, heterogeneous, and valuable scientific insights for sustainable future.

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Bez redukcjonizmu – podejście wglądu multidyscyplinarnego dla efektywnej polityki klimatycznej i zrównoważonego rozwoju

Streszczenie

Zmiany klimatu i inne problemy zrównoważonego rozwoju reprezentują dziś bezprecedensowe wyzwania dla ludzkości. Z powodu takich wyzwań istnieje potrzeba fundamentalnych zmian współczesnego, niezrównoważonego społeczeństwa. Niezbędny jest zaawansowany, interdyscyplinarny wkład naukowy w celu wsparcia polityk publicznych w tym zakresie. Jednakże, jak dotychczas, stan rozwoju tej naukowej agendy jest zdecydowanie niewystarczający. Naukowy i polityczny dyskurs dotyczący zmian klimatu i zrównoważonego rozwoju jest zdominowany przez nauki przyrodnicze, techniczne i perspektywy ekonomiczne, a jednocześnie wiele kluczowych nauk społecznych, w szczególności socjologii, antropologii i etnografii jest marginalizowanych. Niestety, rozwój nurtu zrównoważonej nauki i podejścia behawioralnego (behawioralnych interwencji publicznych, BIP) nie rekompensuje tej luki poznawczej, której rezultatem może być znaczna nieskuteczność współczesnej polityki klimatycznej i zrównoważonego rozwoju. Z powodu obserwacji, że bezrefleksyjne pogłębianie integracji różnych perspektyw może prowadzić do dramatycznej redukcji ich mocy wyjaśniającej staram się podążać w kierunku zmniejszenia takich zagrożeń, a jednocześnie z sukcesem wspólnie wykorzystać perspektywy z różnych dyscyplin. Tym samym, proponuję Podejście Multidyscyplinarnego Wglądu jako platformę dla współpracy naukowców reprezentujących różne dyscypliny i podejścia teoretyczne, tak aby rozwinąć bardziej zbalansowaną i zróżnicowaną naukową agendę. Zastosowanie MIA zostało zaprezentowane przy wykorzystaniu teorii praktyk społecznych, COM-B i paru innych perspektyw na przykładzie praktyki jedzenia. Przykład ten pokazał, że teoria praktyk może być z sukcesem wykorzystana do wyznaczania ogólnych celów interwencji podczas gdy behawioralne COM-B do ich uszczegóławiania tych interwencji – wszystko to bez nadmiernego naruszania założeń obu paradygmatów.

Słowa kluczowe: Teoria praktyk społecznych, behawioralne interwencje publiczne (BIP), COM-B, interdyscyplinarne, zrównoważone tranzycje