Local projects replicated: Insights from Urban Rural Gothenburg

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Introduction: Facing the replication crisis

Social and life sciences are currently (2019) facing a replication crisis, with scholars having found that the results of many scientific studies are difficult or outright impossible to replicate or reproduce on subsequent investigation, either by independent researchers or by the original researchers themselves (Schooler, 2017; Smith, 2014). The crisis goes back to the early 2010s (cf. Pashler, Wagenmakers, 2012), when growing awareness of the problem has undermined trust in the scientific method. Replication has long been considered "the cornerstone of science", with reproducibility of research often being synonymous with scientific integrity (Moonesinghe et al., 2007; Simons, 2014). The replication crisis has thus implicated critical consequences for many fields in which significant theories are grounded on unreproducible work. In many such fields, a number of efforts have since been made to re-investigate results and, if found unreliable, the reasons for the failure of replication. Begley & Ioannidis (2015) have identified the following five predicaments:

1. Generation of new data/publications takes place at an unprecedented rate;
2. Compelling evidence suggest that the majority of results will not stand the test of time;
3. Failure to adhere to good scientific practice and the desperation to "publish or perish" is a likely cause for the crisis;
4. The replication crisis is a multifaceted, multi-stakeholder problem;
5. No single party is solely responsible for the crisis, which also means that no single solution will suffice.

This brings to mind the following question: If science, supposedly the most robust platform for knowledge-making and knowledge transfer we have, cannot handle replicability effectively, what guarantees do we have that societal "comparative projects" are really comparable? In comparative sociology, comparison of social processes between nation states or across different types of society looks for *similarities* across different countries and cultures to uncover the general processes that underlie apparently different social orderings (Bendix, Collins, 1998). This, in turn, forms the basis for the replicability of *societal development projects.*

In this short reflection paper, we look at one such project, 'Urban Rural Gothenburg'. We firstly evaluate what has been delivered in view of its initial assumptions, and what can be considered a failure. Secondly, we critically reflect upon what criteria might have been present for either the success or failure of some of its subprojects respectively. This, we argue, is key for understanding what might work in the context of cross-cultural replication, and what might be considered inappropriate for such task.

Urban Rural Gothenburg

The basis for our analysis is 'Urban Rural Gothenburg', a three-year (2017-19) EU-sponsored project for sustainable development with the overarching aim to create improved conditions for green inno-

vation and green business development between the city and the countryside[1]. Operating in five testbeds in four local hubs in north-eastern Gothenburg, the project seeks to develop and implement new low-carbon approaches to local development, with particular linkages to food, logistics, tourism, and ecological business models. Through cross-border cooperation between the municipality, the business sector, the residents, the civil society and academia (the so-called 'penta-helix model'), 'Urban Rural Gothenburg' is thought to contribute to the fulfillment of Gothenburg's 2017 sustainability goals. This involves combining innovations for social improvement with a reduction of environmental and climate impact to become a sustainable city of globally and locally equitable emissions. In sum, 'Urban Rural Gothenburg' is meant to serve as an *accelerator* for circular economies and green business development with a strong local anchoring.

Methodological note

Given its primary role as an accelerator, 'Urban Rural Gothenburg' can thus be considered a "project of projects". As such, evaluating the project as such would not be purposeful for the here assumed goal, and instead need be broken down to meaningful entities (cf. Dymitrow & Brauer, 2018). With this in mind, five subprojects have been selected on the basis of their level of fulfillment (i.e. achieved results) in view of their respective initial assumptions. The five projects have been chosen to represent both the diversity of the project 'Urban Rural Gothenburg' as well as their variance regarding their perceived level of fulfillment amongst the project leaders and coordinators:

1. The Angered Farmstead
2. "Locally produced food for public kitchens"
3. The *Applied Food Strategy* for Gothenburg
4. Coordination of sustainable transport systems
5. "Green business development in a trust-building context"

The walkthrough that follows consists of two parts. The first part is descriptive, aiming to highlight the following measurable aspects:

1. What was the point (goal) of the project?
2. What results have been achieved?
3. What has not been achieved?

A focus on measurable deliverables is important in so far only this can form a tangible basis for the replicability of results to other socio-cultural contexts. This is opposed to sustainability clichés, which – while replicable socially, culturally and linguistically – cannot be substantially replicated because of lack of material foundation (cf. Dymitrow, 2018).

[1] 'Urban Rural Gothenburg' is funded partly by the European Regional Development Fund (ERDF) via The Swedish Agency for Economic and Regional Growth and is led by Business Region Göteborg (a non-profit subsidiary of The Municipality of Gothenburg) in collaboration with seven other municipal units as partners and co-financers. The project targets primarily small- and medium-sized enterprises by making use of the local communities in north-astern Gothenburg and their socio-economic potential to transition into a more sustainable society. The targeted companies are chiefly to be related to the food value chain "from farm to table", which involves not only food producers, conveyors and logisticians, but also distributors, marketing, communications and IT specialists, stores and local markets, restaurants, hotels and other tourism-related businesses, as well as recycling and knowledge enterprises.

The second part of our analysis consists of a matrix made of six criteria, three structural and three psychological, according to which the subprojects' success/failure have been evaluated. The criteria can be considered general (i.e. culturally invariable or "essential") yet context-sensitive (i.e. where their specific iterations are likely to vary). The choice of the six criteria has been motivated by aspects often brought forth as important/crucial by the sustainability strategists, project leaders and project coordinators working within 'Urban Rural Gothenburg'. As such, it has been supported by practical findings rather than theoretical insights (but see Dymitrow & Brauer, 2018; Brauer & Dymitrow, 2017 for an overview).

The subprojects

The Angered Farmstead

What was the point (goal) of the project?

The Angered Farmstead (2,500 m^2) is a new development and knowledge center for urban farming in northern Gothenburg. With many important players involved, it has resulted in significant opportunities to develop city-based agriculture in the form of a model farm, a knowledge center, a meeting place and a workplace at Angered – a socio-culturally challenged suburb of Gothenburg.

What results have been achieved?

The farmstead has so far developed into a capacity-building institution for education about green industries. The taught programs include upper secondary and adult education, as well as competence development aimed at businesses. The center offers both theoretical and practical training, focusing on efficient, intensive small-scale and economically sustainable vegetable cultivation for the urban market.

What has not been achieved?

While the farmstead as a physical place exists, the business is still under construction, which means that several components are missing. Funds from a national research funding center have been used to develop and strengthen the collaboration model at the Angered Farmstead in order to achieve a co-operative and socio-ecological infrastructure between the city and country. The farmstead has yet to focus on broader marketing of its courses in economically sustainable cultivation of green industries to reach prospective participants from a larger geographical catchment area.

"Locally produced food for public kitchens"

What was the point (goal) of the project?

"Locally produced food for public kitchens" is a subproject aiming to supply the public kitchens of the City of Gothenburg (mostly schools) with locally produced lamb meat. The recreational farm at Bergum (a morphogenetically rural suburb of Gothenburg), which in turn is run by the Angered District Administration Office, has been contracted to produce lamb meat for Gothenburg's preschools instead of being sold to a national buyer of meat (cf. Fermskog et al., 2018; Magnusson et al., 2018; Dymitrow et al., 2019; Kotze et al., 2019).

What results have been achieved?

The locally produced lamb meat in public (preschool) kitchens is a proof that procurement and distribution of local food is practically possible within the City of Gothenburg.

What has not been achieved?

The City's procurement rules are not adapted for local producers, favoring large-scale producers. The regulatory framework must be influenced in order to enable a sustainable collaboration between producers and consumers.

The Applied Food Strategy for Gothenburg

What was the point (goal) of the project?

The Applied Food Strategy for Gothenburg (GAFS) is an ongoing investigation on behalf of the City (Municipality) of Gothenburg, conducted mainly by the Department of Environment Management. The purpose of the investigation has been to provide suggestions how Gothenburg's local food system can contribute to a sustainable and healthy food supply for the entire Gothenburg metro area, while at the same time reducing the City's environmental impact beyond the national borders. The investigation has focused on the role of the municipality within the shift to more sustainable food production and consumption. Furthermore, the investigation has examined how the City of Gothenburg already runs and coordinates certain functions, tools and projects (see section 2.6 in Miljöförvaltningen, 2019; Ingelhag et al., 2018) linked to sustainable food and how they can be strengthened through connection. This can be done by linking to the work on environmental goals monitoring and in the upcoming city-wide environmental management system but above all through the proposed initiatives and by linking to the environmental and climate perspective in a revised School Meal Program (Dymitrow et al., 2019). The investigation also looks into how the City of Gothenburg could systematically work further to produce a long-term effect on the set environmental goals by realizing the three initiatives that internally reinforce each other and by entering as a centerpiece into the municipal school meal program, but also by highlighting the issue in the municipal Climate-Strategic Program. As such, the GAFS is thought to contribute to creating a good living environment and sustainable development for the city, by focusing on solving environmental problems *now*, not handing them over to future generations (cf. Olsson et al., 2018a; 2018b).

What results have been achieved?

An investigation into "sustainable food" has been worked out and presented to the local politicians for further decisions and directions for action. The produced strategic document (Miljöförvaltningen, 2019) was suspended, pending further investigation (as per April 2019).

What has not been achieved?

Decisions on the assessment of "sustainable food" have not been made. The case will reopen in the political committee during April and, in connection with this, the content of the investigation shall be executed. The ambition to establish an applied food strategy for Gothenburg is thus limited to the part of the food system which the city can directly influence, i.e. not the entire food chain from farm to table.

Moreover, while GAFS is an attractive idea, well in line with current calls for food sustainability, the practical work process has been marred by loose and indirect interaction between the actors and insufficient knowledge of the stakeholders' preconditions and priorities to secure stronger impact. To this backdrop, there is also the dual risk of deception if, despite actor involvement, GAFS will fail to materialize, or, contrarily, if GAFS materializes but will not be as effective as anticipated (Fermskog, Dymitrow, 2018).

Coordination of sustainable transport systems

What was the point (goal) of the project?

The project aims to develop new solutions to handle the environmental challenges that transport entails and at the same time create conditions for an attractive urban environment. It applies to new ways of thinking and departing from positive experiences. The growth and densification of the city means that complex systems need to co-operate on ever-smaller areas, while coordinating functions are becoming increasingly important for achieving sustainable social development. Experiences from the Traffic Office of the City of Gothenburg point to the fact that small-scale and environmentally friendly deliveries in the inner city should provide reduced congestion, increased traffic safety and lesser climate and health impact, but no economically sustainable business model has been devised to date.

What results have been achieved?

A feasibility study is being carried out, focusing on reduced climate impact on low-carbon logistics linked to business development for small and medium-sized companies, which shows alternative business models to ensure sustainable transport solutions in the inner city.

What has not been achieved?

The business models for sustainable transport systems in the inner city of Gothenburg have neither been tested nor implemented.

"Green business development in a trust-building context"

What was the point (goal) of the project?

Swedish immigrant integration holds a unique contradiction in that it is lauded as having the 'best' policy in Europe (MIPEX), but its outcomes are amongst some of the poorest (Eurostats). Currently, responsibility of implementing integration policy is held by national agencies at the macro-level. Such a structure, however, is likely to overshadow what goes on at the micro-level, an oversight which is also reflected within current research. By adopting a street-level organization (SLO) approach, this subproject set out to explore the gap between formal policy provision and measurable outcomes, where trust is situated as a critical dimension within the process of integration that is yet to be captured by other means (Kotze, Dymitrow, 2019). More specifically, the aim of the project was to engage immigrants residing in socially challenged areas of Gothenburg in green business development

through systematic, continuous and outreaching activities at a selected SLO which reportedly sees 500 immigrants in circulation every week (Kotze, 2018). Moreover, this SLO is reportedly run by a manager, who instills trust in the circulating immigrants; that is why the activities were supposed to take place on the premises of the SLO, and not somewhere else (cf. Dymitrow et al., 2018).

What results have been achieved?

Only 4 successful meetings with 3 different groups have been organized during a period of 7 months with, thus only one follow-up meeting. Some information sharing through the hiring of local consultants and business experts have been provided. Weekly passive presence (i.e. without a particular program) of a strategist at the SLO has been arranged.

What has not been achieved?

Implementation plans for how to engage immigrant groups that are far from the labor market in green businesses have not been successful, mainly due to lackadaisical and inflexible engagement from key facilitators, and – what follows – feeble participation from the target immigrant groups. Several intricacies surrounding the SLO, including its structure, history, economic agendas and leadership, has brought forth a number of worrying insights that have severed trust-building and impeded future work. Illiteracy among participants as well as constant need of translators, have impeded communication and the project's execution.

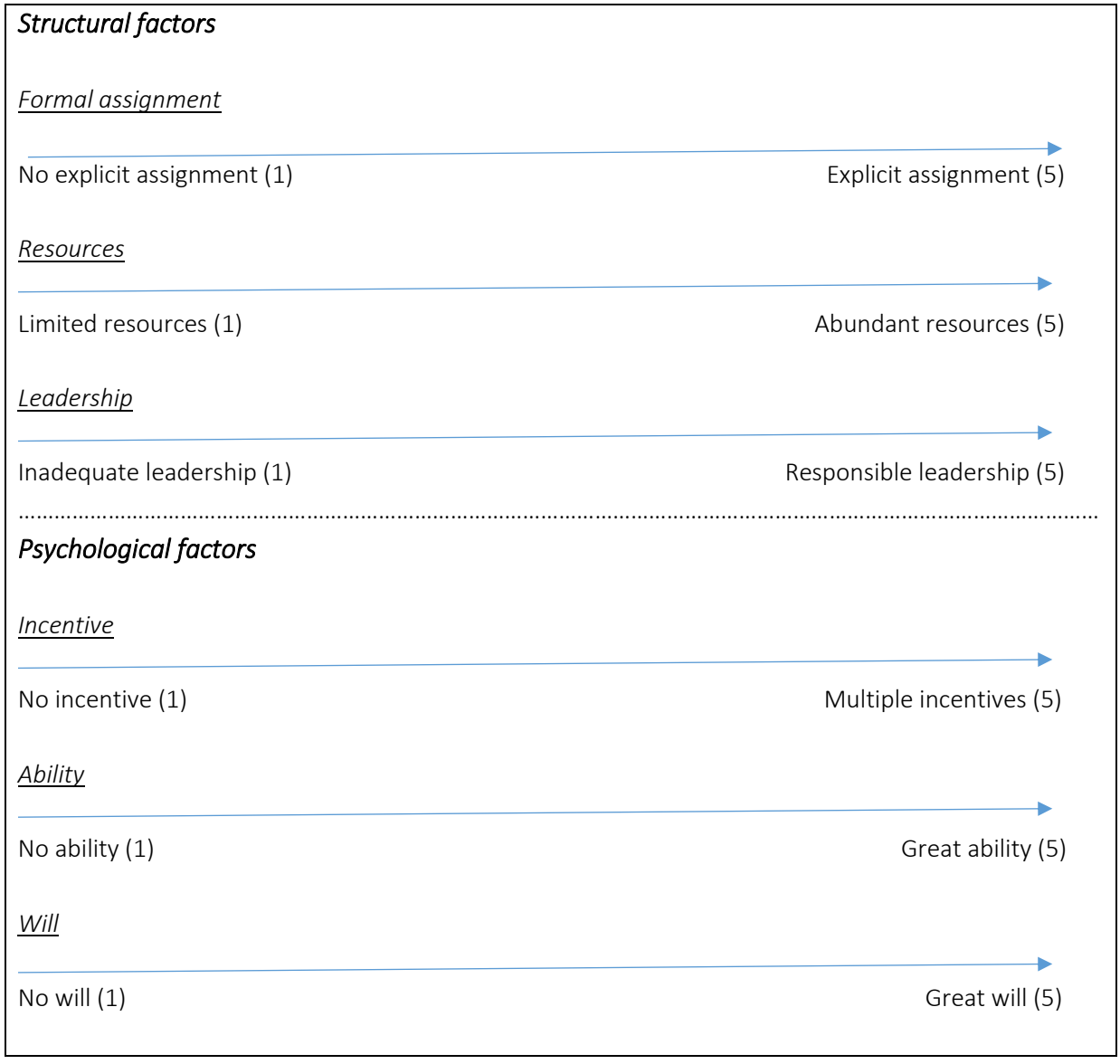
Criteria for evaluation

Replicability of social-science research and collaboration projects are highly reliant upon the quality of social relationships between all stakeholders and actors involved. In this second part of our analysis we have assembled a matrix of six criteria, according to which the subprojects' success/failure have been evaluated. For the sake of brevity, we have grouped the identified factors into *structural* and *psychological* factors (cf. Dymitrow and Brauer, 2018). Structural factors are those shaping the design of the project, 'dictating' in a way what needs to be done in order to obtain the funds and permission to execute a project. As these factors consolidate in structured relations between professionals, they are predominantly collective. Psychological factors, contrarily, relate to the cognitive processes of the human mind, which are ever-present in all our everyday activities, including when running projects. Psychological factors vary from person to person and are therefore largely individual. An important caveat is that the presented twofold division is not hermetic, as any one person's behavior both influences and is influenced by personal factors and the social environment (Bandura, 1986). As such, most factors intersect to varying degrees the outlined dimensions. As a pedagogical tool, however, we find such a division instructive.

Among the structural factors, we include formal assignment, assignment and leadership. If a certain theme is explicitly written into the formal assignments of the project's actors, it is more likely it will be executed to the fullest. The same goes for the project organization; large projects with considerable monetary and staffing resources are more likely to excel than under-resourced projects. Moreover, strong leadership is vital, especially for projects that break new ground. In terms of psychological (individual) factors, incentive, ability and will take center stage. Limited recognition (be it by way of "raise

of praise") create little incentive for engagement, despite strong initial interest. Ability is another understated aspect, as many co-workers manage to pass the initial screening at work interviews, but fail shortly when required to act strategically by themselves. Will (as opposed to laziness) is more difficult to grasp, but applies to those cases when incentives do not seem to work. The figure below helps visualize the described intricacies:

Fig. 1. Factors influencing the successfulness and, indirectly, the replicability, of a project.



The results depicted in Table 1 shows some variation. Expectedly, projects perform best when both structural and psychological factors are synchronized (projects 1 and 2). Projects perform well also when a few criteria are unfulfilled but are balanced off between the two blocks (structural/psychological) (project 3). A greater sense of lack of success is present when the project underperforms in one of the blocks (project 4). Lastly, a project can be considered a failure if no or most criteria are fulfilled (project 5).

Interestingly, the results show that the inscription of a goal into an actor's formal assignment is by no means a token of success, if not supported by other factors. This means that management needs to stay vigilant to collaborations that wander off into the realm of 'sustainability clichés'. Since clichés are socially inculcated, they are easily learned and "replicated", which in turn does not guarantee true replicability. In the case of 'Urban Rural Gothenburg', all subprojects have an explicit sustainability agenda, but they have worked out to quite different outcomes. Project 4 illustrates that despite strong individual components, a project may under-deliver due to weak structural support, because there is a natural limit to how long psychological predispositions may last in the face of failing material support. Lastly, project 5 shows that lack of strong psychological components a project may be considered dead on arrival regardless of whether the structural components are there or not (may lead to either idleness or misuse of funds). This, in turn, points to the importance of capacity-building programs, constant monitoring and audacity to halt a project that reveals early signs of failure.

Tab. 1. Evaluation matrix of five subjects of "Urban Rural Gothenburg" according to select criteria (see Fig. 1).

Subproject	Structural factors			Psychological factors			Sum
	Assignment	Resources	Leadership	Incentive	Ability	Will	
(1) The Angered Farmstead	5	5	5	5	3	5	**28**
(2) "Locally produced food for public kitchens"	5	3	4	3	4	4	**23**
(3) The *Applied Food Strategy* for Gothenburg	5	2	3	3	3	4	**20**
(4) Coordination of sustainable transport systems	5	2	2	2	3	4	**18**
(5) "Green business development in a trust-building context"	3	3	1	1	1	1	**10**

Concluding remarks

Replicability refers to the ability to independently achieve non-identical conclusions that are at least similar, when differences in sampling, research procedures and data analysis methods may exist (Leek, Peng, 2015) Replicability is one of the main pillars of 'the scientific method'; however the concrete expressions of the ideal vary considerably across research disciplines and fields of study (Repko, Szostak, 2016). Social sciences are currently facing a 'replication crisis', meaning that the results of many scientific studies are difficult or impossible to replicate on subsequent investigation. This also means that societal transdisciplinary projects, if insufficiently controlled for, are highly susceptible to the failure of replicability. To be replicable, so it seems, we need to look beyond the scope of thematic commonalties (like food, transport, heritage etc.), and instead look for structural and psychological universals as the baseline for replication.

Such a perspective, while committed to constructionism, at the same time endorses a conservative argument (cf. Dymitrow, 2017). The combination applauds constructivist critiques but feels nervous about giving up universals altogether. It basically signifies a position somewhere in-between, known as normative constructionism, strategic essentialism, pragmatic utopianism and pragmatic universalism (cf. Stengers,2011). Such a pragmatic or functionalist approach uses practical effect as the measure of theory, 'mak[ing] calculated, "strategic" decisions about which universals or essentials might work in a given context and which might fail' (Jones, as quoted in Whitehead 2015: 130). What this means is that it is possible to subscribe to different ontologies about different aspects of the world, and subject matter often dictates what ontological position one adopts toward it. In this respect, we endorse a form of open-ended normativity (cf. Latour, 2004): normative by reluctantly accepting the bias of the scientific formulas as we have defined their ability to say something about the world, but open-ended with regard to awareness that all knowledge is constructed, fluid and flawed.

References

Bandura, A. 1986. *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.

Begley, C.G. and **Ioannidis**, J. P. (2015). Reproducibility in science: Improving the standard for basic and preclinical research. *Circulation Research*. 116*(1)*, 116–126.

Bendix, J. and **Collins**, R. (1998). Comparison in the work of Reinhard Bendix. *Sociological Theory*, 16*(3)*, 298–312.

Brauer, R. and **Dymitrow**, M. (2017). Human Geography and the hinterland: The case of Torsten Hägerstrand's 'belated' recognition. *Moravian Geographical Reports*, 25*(2),* 74–84.

Dymitrow, M. (2017). *Rural/urban redux: Conceptual problems and material effects*. Gothenburg: University of Gothenburg.

Dymitrow, M. (2018). Rural/urban: Laying bare the controversy. *Geographia Polonica*, 91*(4)*, 375–397.

Dymitrow, M. and **Brauer**, R. (2018). Meaningful yet useless? Factors behind the retention of questionable concepts in human geography. *Geografiska Annaler: Series B, Human Geography*, 100*(3),* 195–219.

Dymitrow, M., **Fermskog**, K., **Ingelhag**, K. and **Kotze**, S. (2018). Integration and green business development in a trust-building context. *3rd Mistra Urban Futures Annual International Conference: "Comparative Co-Production", SunSquare Conference Centre,* 5–7 November 2018, Cape Town, South Africa.

Dymitrow, M., **Ingelhag**, K., **Carlsson**, M. and **Eliasson**, S. (2019). Nutrition, health and climate: What have we learned so far? *Conference on Food Science and Nutrition: "Forum for food science and nutrition for a better tomorrow",* 25–26 February 2019, Rome, Italy

Fermskog, K. and **Dymitrow**, M. (2018). Gothenburg's applied food strategy: Meaningful – but how useful? *Development Research Conference 2018: "Rethinking development",* 22–23 August 2018, Gothenburg, Sweden.

Fermskog, K., **Dymitrow**, M. and **Ingelhag**, K. (2018). From skipped free school lunches to poverty-induced food deserts: Some thoughts on Gothenburg's local food strategy – and how to make it happen. *3rd Mistra Urban Futures Annual International Conference: "Comparative Co-Production", SunSquare Conference Centre,* 5–7 November 2018, Cape Town, South Africa.

Hansson, S. (2018). The role of trust in shaping urban planning in local communities: The case of Hammarkullen, Sweden. *Bulletin of Geography. Socio-Economic Series*, 40, 83–100.

Ingelhag, K., **Dymitrow**, M. and **Fermskog**, K., (2018). Local food strategies for the future: Experiences from Gothenburg. *Måltid Sverige:*

"Livsmedelsforum 2018" Conference, Chalmers University of Technology, Environmental Protection Agency, RISE – Research Institutes of Sweden, Västra Götaland Regional Council, Swedish University of Agricultural Sciences, Swedish Agency for Marine and Water Management, 11 October 2018, Gothenburg, Sweden.

Kotze, S. (2018). *Green business development in a trust-making context*. Gothenburg: Mistra Urban Futures / Business Region Göteborg.

Kotze, S. and Dymitrow, M. (2019). The role of trust in street-level organisations within integration projects. *ESPANET 2019 Conference: "Social Citizenship, Migration and Conflict - Equality and opportunity in European welfare states", The European Network for Social Policy Analysis,* 5–7 September 2019, Stockholm, Sweden.

Kotze, S., Dymitrow, M., and Ingelhag, K. (2019). Can a city feed itself? Innovations in City–Region Food Systems from a Swedish perspective. *4th Global Food Security, Food Safety & Sustainability Conference,* 10–11 May 2019, Montreal, Canada.

Latour, B. (2004). How to talk about the Body? The Normative Dimension of Science Studies. *Body & Society*, 10*(2–3)*, 205–229.

Leek, J.T. and Peng, R.D. (2015). Reproducible research can still be wrong: Adopting a prevention approach. *Proceedings of the National Academy of Sciences of the United States of America*, 10 February, 2015.

Magnusson, K., Ingelhag, K., Dymitrow, M., Dahlin, J. and Carlsson, M. (2018). Food and climate as part of public kitchens' sustainability work. *Chalmers Sustainability Day conference: "Good Health and Well-being", Chalmers University of Technology, Session "Loin, larvae or lentils – On eating for health and climate",* 23 October 2018, Gothenburg, Sweden.

Miljöförvaltningen [Department of Environment Management] (2019). *Hållbar mat i Göteborg: Nuläge, omvärldsbevakning och förslag inför fortsatt arbete* [Sustainable food in Gothenburg: Current situation, external monitoring and proposals for continued work]. Gothenburg: City of Gothenburg.

Moonesinghe, R., Khoury, M.J. and Janssens, A.C.J.W (2007). Most published research findings are false—but a little replication goes a long way. *PLOS Medicine*. 4*(2)*, e28.

Olsson, E.G.A., Burman, A., Dymitrow, M., Rinaldi, C., Armbrecht, J., Ohlén, B., Nilsson, A., Ingelhag, K. and Fermskog, K. (2018a). City–Region Food Systems: Scenarios to re-establish urban-rural links through sustainable food provisioning. *Tomorrow's Food Travel (TFT) conference, Centre for Tourism – University of Gothenburg,* 8–10 October 2018, Gothenburg, Sweden.

Olsson, E.G.A., Haysom, G., Dymitrow, M., Fermskog, K., Nyström, M. Opiyo, P., Spring, C., Taylor Buck, N., and Agong', S.G. (2018b). Food systems sustainability: For whom and by whom? – An examination of different "food system change" viewpoints. *Development Research Conference 2018: "Rethinking development",* 22–23 August 2018, Gothenburg, Sweden.

Pashler, H. and Wagenmakers, E.J. (2012). Editors' introduction to the special section on replicability in psychological science: A crisis of confidence? *Perspectives on Psychological Science*. 7*(6),* 528–530.

Repko, A.F. and Szostak, R. (2016). *Interdisciplinary research: Process and theory* (3rd edition). Los Angeles: Sage.

Schooler, J.W. (2014). Metascience could rescue the 'replication crisis'. *Nature*. 515*(7525)*: 9.

Simons, D.J. (2014). The value of direct replication. *Perspectives on psychological science*. 9*(1)*, 76–80.

Smith, N. (2017). Why 'statistical significance' is often insignificant. *Bloomberg*, 2 November 2017.

Stengers, I. (2011). *Thinking with Whitehead: A free and wild creation of concepts*. Cambridge, MA: Harvard University Press.

Whitehead, D. (2015). *William James, pragmatism, and American culture*. Bloomington: University of Indiana Press.