A two-sided medal: On the complexity of international comparative and collaborative team research

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Abstract
In recent years, more and more international comparative research has been conducted in internationally and geographically spread project teams and international research networks, and comparative research has become a fundamentally collaborative effort. Accordingly, research in such projects has to cope with a higher level of methodological complexity than non-comparative research as well as with a particular sociocultural complexity. This complexity can have an influence on the research process and therefore on the quality and validity of the results, an issue that has so far not been discussed much, either in Higher Education research or beyond. Thus, this article refers to studies that provide empirical insights into comparative collaborative research teams and illuminates why international collaboration in comparative research projects is both a source of better solutions and of amplified complications and how they are interrelated. On this basis it provides a conceptual reflection and delineates dimensions of task-related, methodological complexity and team diversity. While comparative research has specific methodological challenges that can be alleviated by international team collaboration, collaborative research has particular social challenges that can be aggravated in comparative research. The conclusion makes propositions for further analyses, discusses lessons for comparative Higher Education research and sets out implications for its institutional development.

1 | INTRODUCTION: GROWTH, BENEFITS AND TENSIONS

We are living in a ‘fourth age of research’ (Adams, 2013, p. 557) which is characterised by a substantial shift of scientific knowledge production from individual, institutional and national research towards international collaborative research (Adams, 2013; Stichweh, 1996). International collaborative research is growing in popularity and its proliferation is driven by interrelated push-and-pull tendencies. On the one hand, an ongoing disciplinary specialisation and
increasingly complex research problems make scientists seek international collaborators to share competencies and to exchange ideas, methods and data (as well as high costs for instruments, experiments and laboratory devices in some fields and disciplines). International collaborative research is also considered to be beneficial because it is associated with higher levels of research productivity as well as visibility, impact and reputation. Moreover, it enables researchers to expand their networks, and thus to gain access to additional funding sources (Abramo, D’Angelo, & Di Costa, 2009; Kwiek, 2015; Kyvik & Larsen, 1994; Lee & Bozemann, 2005; Persson, Glänzel, & Danell, 2004; Rostan, Ceravolo, & Metcalfe, 2014; Wuchty, Jones, & Uzzi, 2007). On the other hand, it is spurred by cost-effective and fast worldwide travel opportunities, as well as new information and communication technologies (ICT), which allow research teams that are geographically spread over continents and time zones to work together. Most importantly, however, international collaborative research is being actively supported by governments and funding organisations at both the national and supranational level (Katz & Martin, 1997; Melin, 2000; Wagner, 2008). Particularly, the funding schemes of the European Union, the Framework Programme (respectively Horizon Programme) and its sub-schemes, which require collaborators from three different countries in order to be eligible for funding, have contributed significantly to the dissemination of international research collaborations (Slipersæter & Aksnes, 2008; Smey & Gorntitzka, 2008; Smey & Trondal, 2005). National funding agencies have also opened up their funding schemes and are making calls for international collaborative research constellations and create joint, regionally focused, funding schemes, like, for example, the Open Research Area (ORA) for the Social Sciences (Cuntz & Peuckert, 2015).

The overall rate of international collaborative research is continuously growing across fields and disciplines (Gazni, Sugimoto, & Didegah, 2012; Leydesdorff, Park, & Wagner, 2014; Persson et al., 2004)—albeit on different levels. On one end of the spectrum are the natural sciences, which have a largely international research agenda and produce universal knowledge, are used to a mode of large team big science knowledge production (Price, 1971) and show a high level of international collaboration. The other end of the spectrum is represented by the social sciences and the humanities, which have a more national and local oriented research attitude and produce more culturally bound knowledge, are still largely characterised by a mode of knowledge production based on individual research and have a considerably lower level of international collaboration (Kyvik, 2013; Lewis, Ross, & Holden, 2012; Rostan & Ceravolo, 2015; Slipersæter & Aksnes, 2008; Smey & Trondal, 2005; van Raan, 1997). Within the social sciences, international comparative research stands out particularly because it gathers and compares data from different national, cultural, geographical contexts and in different languages, and thus per se has an international and cosmopolitan outlook. Besides additional access to funding, increased impact and an expansion of networks, etc., there are also specific—instrumental and epistemic—rationales for international research collaboration in comparative research: the comparativist can notably benefit from an international collaboration because of the access to knowledge about the context and culture of the countries under investigation as well as to contacts and data on the local ground. Thus, international comparative social science research is more conducive to international research collaboration and to an increasing degree it is also conducted in an international collaborative mode.

But as the international collaborative mode of comparative research increases, questions are also emerging as to what constitutes a successful collaboration. Moreover, international collaborations have not only been praised but also questioned. Researchers who have been involved in collaborative and comparative Higher Education research have not only pointed out benefits, but also serious drawbacks, risks and complications (e.g., Brew, Boud, Lucas, & Crawford, 2013; Hoffman & Horta, 2016; Lepori, 2017). Comparative collaborative research takes more time than non-comparative/non-collaborative research and not every team is successful. Some can achieve only part of their goals, or fail and dissolve, and it seems crucial to understand the characteristics that contribute to a research team’s success (or failure) as this mode of research increases.

The article investigates the characteristics and complexity of international comparative research that is conducted in international collaborative teams in order to stimulate the debate and further research within the field of Higher Education. This could be beneficial for two reasons: (a) Higher Education research can contribute important complementary and new perspectives to the study of (comparative) collaborative research that has so far been dominated by other disciplines; and (b) as comparative collaborative research is growing in Higher Education
research, particularly in the European community, it is very likely that many researchers will find themselves partic-
icipating in (or maybe as principal investigator in charge of) an international collaborative research team at some
point in their careers.

The article is structured as follows: after brief definitions of international comparative collaborative team research,
the analysis will, first, refer to studies that provide empirical insights into comparative collaborative research teams. It
will illuminate why international collaboration in comparative research projects is both a source of better solutions and
of amplified complications and how they are interrelated. It will then turn to a conceptual reflection and delineate
dimensions of task-related methodological complexity and team diversity. While comparative research has specific
methodological challenges that can be alleviated by international team collaboration, collaborative research has particu-
lar social challenges that can be aggravated in comparative research. The conclusion makes propositions for further
analyses, discusses lessons for comparative Higher Education research and sets out implications for its institutional
development.

2 | COMPARATIVE AND COLLABORATIVE RESEARCH TEAMS—SOME
DEFINITIONS

For an overall terminology, international comparative research is defined here as (empirical) research that collects data
and/or carries out observations across national, geographical and cultural boundaries in at least two of such entities,
and systematically correlates those entities in a comparative analysis (Kosmützky, 2016, 2017; see for similar accounts:
Gurevitch & Blumler, 1990; Hantrais, 2009; Smelser 2013). International comparative studies have played an important
role since the institutionalisation of Higher Education research in the 1960s and 1970s (Teichler, 1996), and interna-
tional comparison is one of the field’s key methodologies (Tight, 2012) and has become a growing type of research in
recent years (Kosmützky, 2015; Kuzhabekova, Hendel, & Chapman, 2015). In a survey of 146 Higher Education
research facilities worldwide, more than 40 per cent claimed that international comparative and international research
is one of their five most important research areas (Rumbley, Stanfield, & De Gayardon, 2014). Comparative research
can be conducted by individual researchers and national teams, which use international comparative data or travel
abroad for data collection and fieldwork. While a so-called ‘safari approach’ of single-nation research teams that ven-
tured into foreign countries to collect data and gather material for comparative analyses was predominant up to the
1980s (Hantrais, 2009, p. 144), from the mid-1990s onwards, multinational research teams and international research
networks have become a more and more common mode of comparative research—in Higher Education studies
(Teichler, 2014) and different fields of comparative social science research (e.g., Crossley & Watson, 2004; Esser &
Hanitzsch, 2012; Smelser, 2003). Recent bibliometric studies have shown for comparative Higher Education research
that their proportion of international co-authored articles is already nearly twice as large compared to non-
comparative Higher Education research (Kosmützky & Krücken, 2014).

The term research collaboration is generally used to describe relationships between individuals, organisations (and
relationships of individuals with organisations) and countries. This article focuses on research collaboration between
individuals; particularly individuals that are members of geographically spread research teams and engage together in
comparative research on a project basis. Such a research collaboration can be defined as a temporary social process in
which scholars pool their complementary skills and expertise and become functionally interdependent in order to pro-
duce knowledge they could not have generated on their own (definition based on Bozeman, Fay, & Slade, 2013;
Hagstrom, 1965; Patel, 1973; Schrage, 1995). In a broad sense, it incorporates various activities such as the division of
labour and integration of knowledge, service collaboration, transmission of know-how, provision of access to research
requirements, and bilateral stimulation and critique (Jeong, Choi, & Kim, 2014; Katz & Martin, 1997; Laudel, 2002;
Lewis et al., 2012).1 Collaborative research teams are defined as largely voluntary, substantially autonomous, self-
governed social entities or systems based on mutual interest of multiple individuals (that see themselves and are seen
by others as a team) (Wang & Hicks, 2015; Weiss & Hoegl, 2015). They can vary from pretty fluid ad hoc teams with
unstable memberships and ill-defined boundaries to a more stable temporary organisation in the form of research
projects based on shared goals (e.g., as part of a research proposal), project funding and more stable memberships (Wang & Hicks, 2015; López-Yáñez & Altopiedi, 2015).

Building on Anderson (2011), a collaborative research project team can additionally be defined as an international team when it involves investigators whose primary employment affiliations are located in different countries. Studies have shown that not only research collaboration on the individual level increases. Rather, research institutions and national Higher Education and science systems also become more and more international and transnational (Franzoni, Scellato, & Stephan, 2012; Sørensen & Schneider, 2017). The definition used here distinguishes between international teams that are geographically spread on an international scale and culturally diverse but nationally homogeneous domestic teams, and the article focuses on the former.

All research collaborations—whether or not they are domestic or international—are subject to challenges resulting from questions like ’Who is in charge?’, ’Who will do the work?’, ’How will work be divided and knowledge integrated?’, ’Who gets credit for the outcomes of the collaboration?’, etc. (Anderson, 2011). In international collaborative research, however, challenges additionally stem from the geographically dispersed, international and intercultural character of the team. Such teams are additionally affected by geographical distance (involving time zones, travel, communication, etc.), cultural and linguistic distance (including different languages, academic styles and cultural backgrounds, perhaps also disciplines, etc.), and institutional distance (including infrastructure issues, research ethics, workloads, etc.). Some teams that receive funding from different national or supranational funding sources operate in a transnational space and can be described as transnational research teams (for a similar account, see Earley & Gardner, 2005). Domestic teams with members from abroad will share some of the challenges of geographically spread international teams (cultural and linguistic distance) but they operate in the same national or institutional environment and do not cross long distances and time. And geographical proximity can compensate other forms of distance and can positively influence research collaboration through mutual trust building due to frequent face-to-face contacts, as research has repeatedly shown (Boschma, 2005; Frame & Carpenter, 1979; Landry, Traore, & Godin, 1996; Luukkonen, Persson, & Sivertsen, 1992; Ponds, van Oort, & Frenken, 2007).2

The actual forms of comparative and collaborative projects vary according to their funding, participating countries and their geographical scope. They may also be long-term or limited in duration. Based on Katz and Martin (1997), Melin (2000) and Wagner (2005), they can be analytically distinguished into three forms:3

1. Small-scale international projects that cooperate directly, interpersonally and temporarily in comparative empirical research, based on joint national project funding, but often also self-funded (through institutional resources).4
2. Large-scale transnational research projects or consortia composed of international teams that are geographically dispersed in several locations and collaborate on a funding basis provided by supranational funding agencies or other funding sources within the partner countries. Sometimes they involve substantial infrastructure development (e.g., building of large comparative databases) and therefore concatenate project funding.5
3. Multinational research networks, which result from the cooperation of new national and supranational funding policies and are sometimes part of (research) roadmaps.6

While the second and third types are easy to identify, for example, within the European Commission’s project database for EU-funded projects (CORDIS), the first type is less visible. Small-scale projects with funding from national funding sources can be partly identified through databases by national funding agencies (e.g., the GEPRIS database by the German Research Foundation, see, e.g., Cuntz & Peuckert, 2015 for an analysis of internationality of national funding agencies), but projects based on institutional resources can be basically detected through funding acknowledgments in publications, web search or expert interviews. Not all projects have their own project websites and there is no international directory for Higher Education research projects. However, with the emergence of type two and three projects the social sciences, and among them Higher Education research, adapted the mode of large team big science knowledge production (Price, 1971), previously known basically from the sciences.
International research collaboration (as well as interdisciplinary and transdisciplinary collaboration) is one of the traditional core topics in the (social) science studies and science and technology studies (STS), and there is an extensive knowledge base about collaboration motives, the characteristics of actors involved (on an individual and institutional level), factors influencing collaboration (like, e.g., a common scientific language, trust, funding, mobility, types of research, disciplines, etc.) and in particular the extent of the collaboration as well as its impact (productivity, impact but also benefits and costs) (for overviews, see Bozeman & Boardman, 2014; Bukvova, 2010; Katz & Martin, 1997; Subramanyam, 1983). Research on international collaborative research in the field of Higher Education intersects with the science studies literature to a large extent regarding these themes and through its (often) bibliometric approach. Additionally, it provides very valuable insights on the influence of national and supranational policies on international collaborative research (e.g., Slipersæter & Aksnes, 2008; Smeby & Gornitzka, 2008; Smeby & Trondal, 2005) as well as insights on causal relationships and explanatory factors that influence research collaboration on the individual, institutional and national level (e.g., Kwiek, 2015; Kyvik & Aksnes, 2015; Rostan & Ceravolo, 2015; Rostan et al., 2014). What is mostly missing in both fields are analyses that systematically provide insight into the micro-level and collaborative research practice of international research teams—whether comparative or non-comparative (for exceptions, see, e.g., Jeong et al., 2014; Rambur, 2009; Shore & Groen, 2009; Ulnicane, 2015).

The micro-level of team research is, however, at the core of the new transdisciplinary field of the science of team science (SOTS). It is explicitly centred on the study of research teams, the integrative interactions, processes, dynamics and structures of team research, and how they influence the quality and results of research (for overviews, see, e.g., Falk-Krzesinski et al., 2011; Fiore, 2008; Stokols et al., 2008). Team science research has emerged in the fields of (bio-)medicine and computer science, in which multi-institutional, transdisciplinary research networks (funded by public as well as private funding programmes) play an important role. SOTS takes the individual as well as organisational level and the diversity of the perspectives of the team members and participating organisations into account, but the international aspect is (yet) omitted. Neither are different national/cultural origins, languages or academic cultures of team members investigated nor are multi-institutional groups in different countries addressed and examined. Teams in the social sciences are also not on the radar of research in this field. Rather, the focus is on transdisciplinary science and health projects and their translations and outcomes, and serves the direct improvement of research practice in multi-institutional research networks (Cooke & Hilton, 2015). Also, a theory of five cornerstones of success of research teams has been developed from empirical research (Olson et al., 2008). But recommendations and recipes for successful research collaborations that stem from the sciences cannot be easily transferred to social sciences research, and particularly not to comparative research projects, as will be discussed later.

To sum up this brief overview about the research on international collaborative research, one can conclude that the micro-level of comparative and international collaborative teams has so far not been examined and is still mostly a black box.

The increasingly international collaborative mode of comparative research has also not yet been studied in the literature on comparative research, although it can be assumed that the institutional configuration and sociocultural complexity of collaborative comparative projects influence the research practice and, thus, also the research results. Some exceptions at least acknowledge the additional complexity of comparative research that is conducted within international teams, but they have not investigated it systematically (e.g., Esser & Hanitzsch, 2012; Hantrais, 2009; Livingstone, 2003; Teichler, 2014). Interestingly, several articles on processes and practices in international comparative collaborative projects in different social science fields—two of the studies (Brew et al., 2013; Hoffman et al., 2014) are from the field of Higher Education—seek to describe and analyse experiences on the team level. They basically have emerged as explicit project auto- or self-ethnographies (e.g., Brew et al., 2013; Hoffman et al., 2014; Jonsen et al., 2012) or as by-product reflections based on experience reports from one or several team members or on interviews, field notes, email conversations, etc. (e.g., Bagshaw, Lepp, & Zorn, 2007; Brewster, Mayrhofer, & Reichel, 2011;
Easterby-Smith & Malina, 1999; Gardner et al., 2012; Sugden & Punch, 2014; Tartas & Muller Mirza, 2007; Thomas, Tienari, Davies, & Meriläinen, 2009). These studies provide insights into what happens in the research practice and on the micro-level of research teams when groups are stretched over geographical distance, generations, cultural beliefs, values and norms, etc.

Although the studies (see Table 1) have very different empirical foci with regard to the comparative collaborative research practice and differ in their design (small-scale projects, large-scale consortia, multinational networks) and funding sources (self-funded, national funding, supranational funding), they all indicate, as mentioned in the introduction, that scholars enthusiastically embark on an international collaborative and comparative project. They soon notice, however, that the collaboration practice is not only interesting and stimulating, but also complicated and exhausting, the collaboration process is fragile and vulnerable, and the results often fall far short of expectations. Furthermore, they all emphasise two focal points of the comparative and collaborative practice, which provide an important starting point for the further investigation of this research practice in the social sciences.

First, they consistently show that the different cultural, disciplinary and methodological perspectives (and identities) of team members can positively influence as well as hinder the comparative research process. On the one hand, the multiperspectivity and the detailed contextual knowledge about the comparative objects that the team members from different countries bring into the research project is conducive to comparative research, and an international team of local experts of the countries, cultures and contexts under investigation makes rigorous comparative research possible. On the other hand, the different perspectives of the team members increase the (social) complexity and make it more difficult to achieve a common ground of understanding. For example, Tartas and Muller Mirza (2007) analyse team communication processes and illuminate how sharing common practices across countries in order to achieve comparable results can be hindered by such a team, and how, at the same time, it can help to take the particularities of each context into account. Additionally, the study by Brew et al. (2013) focuses on overlooked differences regarding structural and funding constraints, linguistic anomalies, and different levels of institutional and personal risk in comparative collaborative teams. They call them ‘deceptive similarities’ and show that they can hamper the research process (p. 101; Jonsen et al., 2012 argue similarly). However, according to the 11 studies, international collaboration in comparative research is both a source of better solutions to challenges occurring in comparative research and a source of amplified complications.

Second, all studies consensually call for reflexivity of the research practice, team communication, dynamics and relationships, power relations and differences (cultural, methodological, ideological, disciplinary, etc.) in all phases of the research process in order to deal with tensions, task complexity and mutual trust building. Furthermore, the studies by Brewster et al. (2011), Teagarden et al. (1995), Easterby-Smith and Malina (1999), Gardner et al. (2012), Tartas and Muller Mirza (2007), and Jonsen et al. (2012) point out that the challenges and problems are distinct in different phases of the research process and the life cycle of projects—from the team establishment phase to the completion of research—and call for different forms and different aspects of reflexivity. Whereas, for example, personal meetings and reflections on the composition and diversity of the team are important at the beginning of the collaboration to establish trust (and ‘far-but-close’ teams, Jonsen et al., 2012, p. 402), it is less meaningful in later stages where bi- and multilateral written feedback, reflections and revision of team members on data collection processes and data analysis are more relevant. Also, the study by Tartas and Muller Mirza (2007) emphasises the productive nature of conflicts. Socio-cognitive conflicts and tensions can be creative nodes and a nucleus of learning processes—as long as there is room to deal with the conflicts. On a similar note, the study by Brew et al. (2013) demonstrates that deceptive similarities, once made visible as differences within the team, can be managed through reflexive awareness of research team members and deliberate actions, and can eventually contribute to the team’s success. Additionally, the study by Sugden and Punch (2014) suggests another innovative strategy of coping with challenges of comparative collaborative projects: the inclusion of a mobile researcher who rotates between geographically dispersed teams and thus acts as methodological and social facilitator.

The following section will utilise these important insights in order to capture the specific characteristics of comparative and collaborative social science research analytically.
TABLE 1  Synthesis of self-reflecting studies on comparative and collaborative research teams

<table>
<thead>
<tr>
<th>Study</th>
<th>Form and theme</th>
<th>Team size</th>
<th>Countries</th>
<th>Empirical focus</th>
<th>Theories</th>
<th>Method</th>
<th>Funding</th>
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<tbody>
<tr>
<td><strong>Management and organisation studies</strong></td>
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<tr>
<td>Teagarden et al. (1995)</td>
<td>Research consortium on 'best international human resource management (HRM) practices'</td>
<td>37</td>
<td>Australia, Japan, Germany, UK, Israel, USA, Spain, Mexico, France, Sweden, Indonesia, Bolivia, Costa Rica, Taiwan, Netherlands, Korea, Sweden, Nigeria</td>
<td>Complexity, cost, time, commitment and methodology at four phases of the research process</td>
<td>Communication, coordination and control in trans-organisational systems (TOS) (Cummings)</td>
<td>Embedded longitudinal idiographic case study on their own research consortium: 'inquiry from inside'</td>
<td>Self-funded, partial support by principal investigator’s (PI’s) institutions</td>
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<tr>
<td>Easterby-Smith and Malina (1999)</td>
<td>Project on decision making in organisations</td>
<td>14</td>
<td>UK, China</td>
<td>Power relations and reflexivity, five phases of the collaborative research process</td>
<td>Cultural differences (Hofstede, Galtung, Nonaka and Takeuchi, etc.)</td>
<td>Reflexive dialogue, applying mirroring and contrasting techniques</td>
<td>National Funding Agencies</td>
</tr>
<tr>
<td>Thomas et al. (2009)</td>
<td>Joint research on identity construction in professional work</td>
<td>4</td>
<td>UK, Finland</td>
<td>Power relations, culturally informed interpretative repertoires/cultural baggage</td>
<td>Culturally bound knowledge (Harding, Haraway, etc.)</td>
<td>Ideographic approach, radical reflexivity</td>
<td>Self-funded</td>
</tr>
<tr>
<td>Brewster et al. (2011)</td>
<td>Cranenet—network for the establishment of human resource (HR) database</td>
<td>45</td>
<td>Worldwide</td>
<td>Network life cycle dynamics</td>
<td>Organisational life cycles (Mintzberg); coordination and control mechanisms (Ouchi)</td>
<td>Discussion of selected issues according to the theoretical models</td>
<td>National professional associations, no central network funding</td>
</tr>
<tr>
<td>Jonsen et al. (2012)</td>
<td>Three collaborative research cases with participation by the authors</td>
<td>17</td>
<td>Researchers from one county (case 1); two groups from UK and France (case 2); researchers from two Finish universities and Nordic companies</td>
<td>Relationship between intellectual processes and tensions; collaborative writing and outcomes</td>
<td>Auto-ethnography</td>
<td>No central funding</td>
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<tr>
<td><strong>Psycho-social health research</strong></td>
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<tr>
<td>Bagshaw et al. (2007)</td>
<td>Research on drug affordability for the elderly in rural areas</td>
<td>4</td>
<td>USA, UK, Mexico and Kenya</td>
<td>Diversity, self-reflection, cooperative dialogue and trust</td>
<td>Self-reflectivity (Agyris and Schön), trust (Ting-Toomey), roadblocks in teams (Tjosvold)</td>
<td>Discussion of individual and shared experiences</td>
<td>Self-funded</td>
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<thead>
<tr>
<th>Study</th>
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<th>Method</th>
<th>Funding</th>
</tr>
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<tbody>
<tr>
<td>Gardner et al. (2012)</td>
<td>PRGRN—network (interdisciplinary: social science and science) for research on social isolation and ageing</td>
<td>9</td>
<td>Japan, China, India, South Korea, New Zealand, USA</td>
<td>Team process, what worked and what happened</td>
<td>Joint reflection of collaboration practice</td>
<td>Start-up funding $10,000</td>
<td></td>
</tr>
<tr>
<td>Sugden and Punch (2014)</td>
<td>HighARCS-Project (interdisciplinary: social science and science) on aquatic resource use, rural livelihoods, work and education</td>
<td>9</td>
<td>Vietnam, China and India plus UK, Denmark and Philippines as home countries of steering committee members</td>
<td>Mobile researcher in an international comparative project</td>
<td>Semi-structured interviews with members of the steering committee; field notes, etc.</td>
<td>7th EU Framework Programme</td>
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<tr>
<td>Tartas and Müller Mirza (2007)</td>
<td>DUNES—interdisciplinary project (psychology, computer science, education) for the development of a learning software tool</td>
<td>9</td>
<td>France, Germany, Greece, Netherlands, Israel, Switzerland, UK, Sweden</td>
<td>Negotiations and tensions in the project chronology</td>
<td>Communities of practice (Wenger); activity theory (Vygotsky and Leontiev)</td>
<td>Reflection inspired by ethnography</td>
<td>5th EU Framework Programme</td>
</tr>
<tr>
<td>Brew et al. (2013)</td>
<td>Joint research on professional identity formation and development of academics</td>
<td>4</td>
<td>Australia, UK</td>
<td>How risks and time to research output in collaborative comparative research can be managed</td>
<td>Framework of multinational collaboration (Rambur); reflexive deliberation (Archer)</td>
<td>Personal and collective deliberations</td>
<td>Self-funded</td>
</tr>
<tr>
<td>Hoffman et al. (2014)</td>
<td>Research programme consisting of four independent research projects in international comparative Higher Education</td>
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<td></td>
<td>Information and communication technology (ICT) and research team dynamics</td>
<td>Research practice; power dynamics (Bourdieu)</td>
<td>Self-ethnography</td>
<td>European Science Foundation (ESF), National Funding Agencies</td>
</tr>
</tbody>
</table>
Comparative research has many benefits that have been extensively reported. But, as argued earlier, the task-related methodological complexity of comparative research is much higher than in non-comparative research (Kosmützky & Wöhlert, 2015; following, e.g., Hantrais, 2009; Øyen, 1990; Smelser, 2013). Comparative research is methodologically more challenging because of the combined and simultaneous observation of (partial) sameness and difference of its research objects in different national Higher Education systems. It is furthermore challenging because the analysis usually proceeds simultaneously at the level of the Higher Education system or country, which is typically used for the explanation of similarities and differences, and at a within system level, for example, policy discourses, universities as organisations and academic careers. But is also more complex than non-comparative research because it gathers, analyses and compares data from different national, geographic, cultural, etc. contexts, and in different languages (e.g., Kosmützky, 2015, 2016; Przeworski & Teune, 1966; Smelser, 2013). When conducting comparative research, both individual researchers and international teams cope with these methodological problems, and contextual knowledge of the countries and cultures of the comparative objects and units under investigation is essential to cope with them and for rigorous comparative research. Both the individual researcher and the research team may also pursue a multi- or even mixed-method study and/or a study with a transdisciplinary focus (e.g., Hantrais, 2009; Livingston, 2003; Teichler, 2014). Additionally, in international research teams that conduct comparative research, task interdependence and task-related issues as the division of labour and the integration of knowledge add to the complexity of comparative research (Mauthner & Doucet, 2008; Olson et al., 2008).

Furthermore, international research teams have to cope with their team members’ diversity, which is conceptualised here ‘as the dispersion of group members’ positions on a given dimension of diversity’ (van Knippenberg & Schippers, 2007, p. 522). One of such dimensions is that geographically dispersed multi-location research teams are culturally diverse and consist of team members speaking different languages and coming from countries with differing academic styles, cultural norms and practices (Jeong et al., 2014; Rambur, 2009; Wagner, 2005). Another dimension is that (international) research teams also cope with team members in different career stages, from doctoral students to senior professors, with diverse goals and needs (e.g., publications vs. reputation) and differing requirements and practices of PhD training and education (Anderson et al., 2011). Moreover, on two additional dimensions, the team members bring their diverse working backgrounds in multiple institutional settings (e.g., research universities, teaching universities, (extramural) research institutes, think tanks, etc.) and in multiple environmental contexts (national Higher Education and science systems) into the team. Thus, there are differing standards of research integrity and ethics, legal and normative aspects, governance and quality assurance, and graduate education and postdoctoral training within the team (Anderson, 2011; Bohnhorst, McQuaid, Bolton Tsantir, Amundson, & Anderson, 2011; De Vries, Rott, & Paruchuri, 2011).

In sum (see Table 2) the complexity and diversity of international comparative and collaborative research can be analytically distinguished into four dimensions of task-related and methodological complexity, four dimensions of team diversity and one dimension that is both (multi-location knowledge production). Together, these dimensions help to determine and disentangle the benefits as well as drawbacks and particular tensions of comparative research that is conducted in an international collaborative team (for a similar distinction in task-related and social interaction in research teams, see Hoegl & Proserpio, 2004).

Whereas diversity has traditionally been portrayed as a genuinely positive force that optimises a team’s potential (Cox, 1993; Jackson, May, & Whitney, 1995), many recent studies have shown that team diversity actually might have positive as well as negative effects on team performance and success (for an overview, see van Knippenberg & Schippers, 2007). Team diversity associated with differences in knowledge, expertise and perspectives can benefit group performance, creativity and innovative research because of a broad range of task-related knowledge, skills and abilities. Team diversity is particularly important for comparative research because it brings task-relevant contextual knowledge of the comparative objects, access to data sources and contacts on the local ground to the research team.
But as team members differ more in cultural, institutional, disciplinary, etc. background and expertise, it also becomes more likely that they do not share a common frame of reference and might not understand each other’s input. Research has also shown that teams function more smoothly and have a better speed of completing tasks when they are more homogenous (van Knippenberg & Schippers, 2007). Furthermore, some studies indicate that geographical distance might be mitigated by intellectual proximity (Ulinicane, 2015). Thus, the potentially positive effects of diversity on group performance might only sustain up to a certain level. Beyond that, the lack of a common frame of reference might get in the way of understanding and appreciating other team members’ contributions (van Knippenberg, De Dreu, & Homan, 2004). Moreover, diversity in one dimension might be contingent on diversity in another dimension (van Knippenberg & Schippers, 2007) and there might be a faultiness (a term introduced by Lau & Murnighan, 1998) when levels of diversity in different dimensions correlate.

However, one can conclude that the cultural, institutional and geographical diversity of the team members can optimise the team’s analytical potential because it matches the task-related and methodological complexity of comparative research. But the additional argument made here is that international collaborative research teams also cope with challenges that result from the teams’ diversity and can be alleviated in comparative research. In order to deal with the methodological complexity of comparative research, some common ground regarding terms, concepts and theories, and methods used for data collection and data analysis, etc. is essential. In this respect, a strong degree of diversity in many different dimensions might become a constraint.
As mentioned above, a theory of five cornerstones of research collaboration and related recommendations have been developed based on empirical studies on team research in the sciences within the SOTS (Olson et al., 2008). But these recommendations largely do not fit for comparative and collaborative research in the social sciences because of its intertwined task-related methodological complexity and (social) team diversity.

One essential cornerstone is the division of labour and modularisation of tasks, so that the team members can work relatively independent from one another (the assumption is that work tasks have to be clear, highly modularised and divided) (Olson et al., 2008). From a social sciences and comparative research perspective, a high or maximum division of labour can also be epistemologically problematic because a division of the knowledge production process causes a division of the knowledge itself (which might also create knowledge hierarchies). Thus, the division of labour simultaneously creates the need for strategies regarding knowledge integration (Mauthner & Doucet, 2008). Comparative research systematically correlates data and findings collected in different countries, by different country teams, and, thus, is highly interdependent on systematic knowledge integration. Another cornerstone is defined as commonalities between the team members, such as, for example, a previous and successful collaboration, joint vocabulary, work style, etc. (Olson et al., 2008). However, as diversity in different dimensions is one of the core characteristics of international comparative collaborative teams, commonalities might certainly be an important goal, but are questionable as a precondition for such comparative collaborative teams. The third cornerstone is collaboration readiness, which comprises a collaborative culture, shared goals, motivation, trust and self-efficacy as a group (Olson et al., 2008). One can agree that mutual trust is particularly important when knowledge production in international research teams is carried out with high uncertainty due to their temporary and simultaneously collaborative character, while at the same with a high interdependence because of the comparative nature of the research (see, e.g., Amabile et al., 2001). However, the geographically spread and temporary character of such teams limits the possibilities of trust building (which can result from face-to-face interaction) (Bakker, 2010; Meyerson, Weick, & Kramer, 1996). Instead, it might be more plausible for comparative collaborative research to think about reflexivity as a cornerstone of success, as suggested by the self-ethnographic studies analysed for this article, and as it has been identified as one of the key factors in the effectiveness and performance of work teams (Schippers, Den Hartog, & Koopman, 2007).

5 | CONCLUSION: INTERNATIONAL RESEARCH COLLABORATION IN COMPARATIVE RESEARCH IS A TWO-SIDED MEDAL

This article has tried to disentangle the complexity of comparative and collaborative research. It has utilised self-reflections by international comparative and collaborative teams on their own team dynamics and research practice as surrogate empirical insights and has grounded these insights into collaborative and comparative teams conceptually. It has argued that the core aspects that make this type of research challenging are task-related complexity and social team diversity. An international team is suitable for dealing with the complexity of comparative research. It is important to note, however, that an international team is also a melting pot of cultural, linguistic, institutional, career stage and national contextual differences, which are often underestimated because researchers are perceived as members of a quasi-universal academic world and profession. Therefore, differences among research team members often remain invisible and, thus, have been labelled as deceptive similarities (Brew et al., 2013) or repressed diversity (Jonsen et al., 2012). Academic life and the academic profession consist, however, not only of disciplinary differences, academic tribes and territories, and academic identities (Becher & Trowler, 1989; Henkel, 2000; Knorr-Cetina, 1999; Whitley, 1984) but also of differing cultural academic styles, research ethics, practices of conducting research and promoting early career scientists, etc. across different countries and regions. Such international differences have been mostly neglected in the study of collaborative research. Instead most emphasis has so far been placed on interdisciplinary and transdisciplinary research so far.

This article has made these differences visible and has conceptually delineated dimensions of diversity that can influence the knowledge production process in international comparative and collaborative teams. As argued based on research on group work (Lau & Murnighan, 1998; van Knippenberg et al., 2004; van Knippenberg & Schippers, 2007), the social diversity of the international team members is a two-sided medal that can positively influence as well as
hinder the comparative research process. On the one hand, team diversity makes rigorous comparative research possible. On the other hand, team diversity, particularly when it exceeds a certain level, can make it more difficult to achieve some conceptual common ground and methodological precision. As a consequence, recommendations for successful international research collaboration have to take the comparative knowledge production process itself into account.

This also indicates that more research on the social dimension and its interplay with the methodological dimension of comparative collaborative social science research is necessary. So far there has been a lack of empirical attention regarding the social diversity of international research teams and processes that are presumed to underlie the effects of diversity. Systematic studies, e.g., in the form of comparative project ethnographies across different types of project teams (small-scale, large-scale, funding sources, etc.), could help to shed light on the impact of team diversity and the interplay of different dimensions of diversity as well as their faultiness on the comparative research process and its results. Higher Education research is perfectly suited to contribute to this area of study, for example, through its expertise with respect to preconditions within the academic profession for international collaboration, differences in cross-national academic work practices, and contextual conditions of institutions and national Higher Education systems (funding conditions, governance and quality assurance, and graduate education and postdoctoral training, legal and normative aspects, etc.). Generally, and beyond focusing on comparative research, there is a greater need for micro-level investigations of collaborative research teams in the social sciences. Such research can help to illuminate what has been labelled as the ‘dark side’ (Bozeman & Boardman, 2014, p. 51) of institutional conflicts and failures in research collaborations and as ‘collaboration hazards’ (Youtie & Bozeman, 2016, p. 390). As far as such conflicts and hazards concern individual characteristics of academics and their working conditions in different institutional and national contexts, Higher Education research is designated to contribute to this area of study.

The findings presented in this article also lead to some practical implications for the further development of comparative Higher Education studies. First of all, the practical conclusion should not be to entirely go back to the safari approach (although it might be more suitable in some cases) and to avoid research collaboration with an international team, but rather to pay attention to the team composition and diversity-related team dynamic from the very beginning—particularly in large research consortia and research networks with more fluid participation of team members. In addition, reflexivity within the team and the collaboration itself should be considered as an additional dimension of project communication throughout the research process that can help in turning team diversity into a constructive rather than destructive force, and improve the project’s dynamic and overall success. Specifically, some studies have pointed out that the challenges of comparative and collaborative research are distinct in different phases of the research process life cycle. They, thus, call for different forms of reflexivity for different phases, e.g., forms that allow mutual trust building at the beginning of the research process (face-to-face meeting) and forms that allow for constructive critique (in written form) at its end. Another obvious practical implication is related to the knowledge principal investigators have about team diversity and related issues. As Hantrais (2009) points out, many principal investigators of international comparative and collaborative research projects learn about the management of such a project on the job. Though it is, of course, important to gain practical experience while actually doing the job, principal investigators may benefit from insights into this task from a meta-perspective. The comparative Higher Education research community might also benefit from training and seminars for graduates, PhD students, and early career scientists on the methodological and social complexities of comparative research. Particularly for graduates, PhDs and postdoctoral researchers new to this mode of knowledge production, insights into the comparative and collaborative research process might provide an important cognitive map of this unknown territory, which can help them to cope with the team process and to produce better theses and research papers.

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ENDNOTES

1 Many researchers, particularly in science and technology studies (STS), think of individual research collaboration with regards to co-authorship (for overviews, see Bozeman et al., 2013; Katz & Martin, 1997). As Katz and Martin (1997), Laude (2002) and Jeong et al. (2014) point out, the co-author concept of collaboration has several advantages, including verifiability, stability over time, data availability and the convenience of easy measurement. Research collaboration is, however, more than writing an article together, and co-authorship is neither necessary nor sufficient for collaboration and at best a partial and conservative indicator of collaboration and the actual collaboration is much higher (as survey research shows, e.g., Kwiek, 2015; Rostan & Ceravolo, 2015).

2 With empirical survey research among 491 collaborative research projects in the field of information technology, Cummings and Kiesler (2005, 2007) have shown that geographic distance plays a particularly important role. Multi-institutional research collaborations, even when only geographically distributed on a national scale and only medium-sized (5–10 participating universities), lead much less to the desired results in the form of articles, new ideas and models, new software, doctoral thesis, etc. than even interdisciplinary collaborations in the same location/institution.

3 For the typology of forms of projects, international collaborative social science research projects were searched within the CORDIS database (the seventh framework programme) and the GEPRIS database (projects with international partners). Examples for Higher Education research were found through web search. A comprehensive quantification of such projects is not feasible at this stage, but a project aiming at quantification is ongoing. International research collaboration in the form of international co-authorship (perhaps even one-time only), invisible colleges, and ad hoc teams and networks (Crane, 1972; Wagner, 2008; Wang & Hicks, 2015) are not included in the considerations here, because they remain invisible and can only be detected by their co-publication patterns.

4 Two different small-scale projects from the field of Higher Education serve as examples for this type of research here: (a) ‘Branding the University: Marketing and Administrative Reform in Higher Education Sector and their Impact Knowledge, Curriculum, and Academic Profession’, which was funded by the Israeli Science Foundation (ISF), included principal investigators from Austria, Germany and Israel and analysed logos of Higher Education institutions in 20 countries in five continents (Delmestri, Oberg, & Drori, 2015); and (b) ‘Academic Inbreeding and Mobility in Higher Education: Global Perspectives’ is a collaboration between researchers at the Higher School of Economics in Moscow and the Boston College Center for International Higher Education that comparatively examined academic inbreeding in eight different countries and was funded mainly by the Higher School of Economics (Yudkevich, Altbach, & Rumbley, 2015).

5 The project ‘Identifying Barriers in Promoting European Standards and Guidelines for Quality Assurance at Institutional Level’ (IBAR), which ran from 2011 to 2013 and included partners from seven countries all over Europe (the Czech Republic, Latvia, the Netherlands, Poland, Portugal, Slovakia and the UK) and also studied these countries, can serve as an example here. It was funded by the European Union’s Life-Long Learning Programme (Eggins, 2014). Another example for this type that is devoted to infrastructure building and has secured funding from national funding agencies for several follow-up studies already is ‘The Changing Academic Profession’ (CAP) project. It was conducted from 2005 to 2013 with teams from 19 countries as a follow-up of the so-called Carnegie Study, which was carried out from 1992 with an international team from 12 countries (Cummings & Teichler, 2015). In 2016, the project ‘Academic Profession in the Knowledge Society’ (APIKS) was set up as another follow-up study with teams from 23 countries.

6 An example for this type is a research network ‘Higher Education and Social Change’ (EuroHESC) programme that has been funded by the European Science Foundation. From 2009 to 2012 four international collaborative projects (with funding from national funding agencies) with a total of over 60 researchers conducted comparative Higher Education research under a common umbrella and with corresponding networking and training activities, which should also serve the further institutionalisation of the European Higher Education research community (European Science Foundation (ESF), 2012). The four projects under the network umbrella were themselves type two projects—some of them were also continued in the form of new projects with somewhat altered partners. The four projects were: ‘Changes in Networks, Higher Education and Knowledge Societies’ (CINHEKS), ‘The Academic Profession in Europe: Responses to Societal Challenges’ (EUROAC), ‘Restructuring Higher Education and Scientific Innovation’ (RHESI) and ‘Transforming Universities in Europe’ (TRUE).

7 The two other cornerstones are highly plausible for collaborative research teams in the social sciences, too: the availability of technological readiness (simple and convenient collaboration technologies that are reliable and beneficial to all stakeholders, agreements on their use, technical support), and an accepted and respected project management and sufficient time for project management (solving legal and financial questions, participatory decision-making, a research management and communication plan).

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