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**PERSPECTIVES ON CONSTRUCTIVE RESEARCH APPROACH:  
IN SEARCH OF THE BASIS FOR VALIDATION**

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<p>Already for some time there have been discussions about the relevance of scientific research in the fields of operations management and management accounting. Due to the applied nature of these fields, the research should produce theories that meet the requirements of scientific bodies and are valuable for practitioners too. Constructive research approach is a research approach where these objectives are built-in characteristics and thus it is an optimal remedy for reducing the gap between science and practice. However, this or any kind of research must be able to meet the standards of science in order to penetrate the scientific publishing arenas and to be accepted into the scientific body of knowledge.</p> <p>Although constructive research can be categorized as a fairly established research approach already, the writings on it have concentrated more on the practical issues of the research inquiry instead of contemplating on the philosophical premises of the approach. In order to confirm its status as a credible scientific research approach, the latter task is seen at least as important as the former. This thesis seizes upon this challenge and concentrates on the validity issues of constructive research.</p> <p>The objective of this thesis is to figure out how the validation of constructive research ought to be conducted. To achieve this aim, the composition of constructive research approach is delved into to form a ground for the suggestions about its validation. An important part of the research process is exploring the concept of validity in order to define what it means in general. Only after that it is possible to suggest what it should mean in constructive research and, thus, figure out how a researcher could find out about the validity i.e. validate his research accordingly.</p> <p>Results of this thesis suggest that validity of constructive research is a property of the means by which the research results were produced. Thus it is not the property of the developed construction that determines the validity of the research as previous studies suggest. In constructive studies where some kind of functionality test is conducted, the validation falls upon the testing procedure. In studies where a proper test cannot be conducted, validity of the research depends on validity of the means by which the construction was constructed.</p> <p>This thesis is conducted as a philosophical inquiry that rests upon the wide use of literature and the author's own reasoning.</p>			
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## FOREWORD

This thesis has been conducted under a commission from the Department of Industrial Engineering and Management at the University of Oulu. I have been privileged to work in the LCIFIN1 -project (Lean Construction in Finland) and want to give my special thanks to Professor Harri Haapasalo at DIEM for giving me this opportunity. If it was not for him, I probably would have finished my diploma with something less challenging and more close to my major in accounting. At the same time, I would have missed out this excellent learning process that has developed my scientific reasoning and perseverance more than any other task during my studentship at the university. I cannot think of a topic that would have been able to give me a superior lesson on science than this.

I would also like to thank the LCIFIN1 project team for their confidence on my ability to comment on their research papers capitalizing on the knowledge I have gained over the course of this research process. It has for sure had an impact on the line of reasoning presented in this thesis that I have had the opportunity to be involved in resolving the methodological problems they have encountered. Keeping the headwork in reference to actual research practice has reminded me to pursue such a solution to a quite philosophical research problem that could really make a difference in practice rather than being just an unhelpful rhetoric.

My compliments belong certainly also for my brother Aki, who, as well, works in the LCIFIN1 -project as a researcher. I appreciate the time he has taken for listening and commenting on my ideas. Spurring in the occasional moments of desperation that this longish process has brought about has been an invaluable asset. I am grateful also for my supervisor Doctor Sinikka Moilanen at Oulu Business School for her encouraging feedback and open-minded attitude towards this rather unusual topic.

“The solutions all are simple – after you have arrived at them. But they’re simple only when you know already what they are.” – *Robert M. Pirsig*

Oulu, December 2012

Laura Pekuri

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# 1 INTRODUCTION

## 1.1 Background and motivation of the study

There has been a lot of discussion about the practical relevance of scientific research within multiple different disciplines. The discussions have evolved around the questions about whether the practical relevance should be considered as an issue worth pursuing in the scientific realm at all (e.g. Bennis & O'Toole 2005; Holmström et al. 2009; Ketokivi 2008; Steinbach & Knight 2006; Quattrone 2009) and if it should, how the relevance of research could be improved (e.g. Hill et al. 1999; Rosemann & Vessey 2008; Thomas & Walter 1982). Even in fields that are considered applied these issues have been under a serious debate.

Malmi and Granlund (2009) argue that the goal of applied research should be offering research results that are of use to those who are studied. In addition to having practical value, the results should build the theoretical base of the discipline. Thus research in applied sciences should strive for practice oriented theories and for the use of knowledge, not only do research for the sake of science itself (Newton 2006: 9). Operations management and management accounting may be categorized as applied sciences (Kasanen et al. 1993; Malmi & Granlund 2009; Markland 2009; Mattessich 1995; Meredith & McMullen 2008, Mitchell 2002) in which the fulfilment of the aforementioned requirements is seen important. Mitchell (2002: 277) argues that management accounting research exists only because there are practitioners in real business organizations that pursue this discipline. The same could be stated about the operations management too. If there were no businesses and their operations, there would not be a research field of operations management either.

Despite the general goal of applied sciences, both operations management and management accounting research have said to be lacking relevance from the practitioner point of view (Holmström et al. 2009; Jakkula et al. 2006; Malmi & Granlund 2009; Mitchell 2002: 278-279). One of the reasons for this may be the preference of the researchers as well as editors over methods and approaches stemming from basic sciences. Basically the distinction is that basic sciences aim to describe what the world is like and applied research aims to produce knowledge that functions as a tool (Ni

iniluoto 1993:3). Another reason for the lack of relevance may be the preference of deducing the research problems from theory rather than practice: losing connection to the real life problems may, according to Mitchell (2002: 277), lead to artificiality in research and end up in unhealthy practice where researchers tend to publish purely for other researchers. This is clearly something that is at odds with the purpose of applied research.

Constructive research approach (CRA) can be seen as a way of reducing the gap between science and practice (Labro & Tuomela 2003; Malmi 2010). It combines theoretical knowledge into practical problem solving producing relevant scientific theories with solid practical implications (Kasanen et al. 1993). According to Malmi and Granlund (2009), this kind of interventionist approach like constructive research implies that the relevance of research should always be considered before truth rather than vice versa. They highlight that “an underlying assumption is that in problem solving science researchers can and should be prescriptive and the validity of the results is tested through implementation: what works in practice is true” (Malmi & Granlund 2009: 614). Considering the discussions about the lost relevance of research in the operations management and management accounting, constructive research sounds like a perfect solution which every researcher should engage in. There are, however, problems related to this type of research too which need to be resolved in order to enhance its position within the academia as a credible and valued research approach.

## **1.2 Research problem, objective and questions**

Demonstrating the value of research results is a necessary requirement for the results to be of any interest to practicing managers (Zebda 2003: 430) and ability to establish the truthfulness of knowledge claims is considered at least as important in science (Avis 1995; Lukka & Modell 2010: 462). *Validation* essentially means the process of finding out about the truthfulness of research. As Hammersley (2003a) states, “researchers do not have a right to believe on insufficient evidence” – research must always be more evidence based than what is required from practice and in practical decision-making. Currently, constructive research approach is set to conquer both of

these challenges by relying on the pragmatist notion of truth i.e. what works is true (Kasanen et al. 1993; Malmi & Granlund 2009). If the construction works, then the research is true. Thus the validity of the results is usually tested through implementation (Malmi & Granlund 2009: 614). But the problem is that although this kind of idea comes with the package of constructive research approach, it does not really help a researcher to justify the validity of his research. Surely there are research types for which the pragmatist idea is all that is needed to guide the researchers in their testing and validation efforts but it must be noted that there is a major probability that this seemingly simple and straightforward precept arouses nothing but big question marks. Let me illustrate this argument with couple of imaginary examples.

Consider a research setting. A researcher working in the field of engineering has discovered a new glass-like material which he anticipates to work well as a construction material. Unbreakability combined to lightness is the quality that bears the potential to make the material revolutionary. However, before exhibiting the results of his research, the researcher must test whether the material really fulfils these aforementioned criteria as well as the other criteria that are considered important for construction materials (e.g. thinning properties and easiness of transportation).

Testing the material's unbreakability, thinning properties and other physical properties is quite straightforward – not to mention the weight. For example, it can be hammered, made thinner, hammered and made thinner again. Repeating the experiment multiple times and observing what happens finally enables the researcher to deduct whether the material has those qualities that he anticipated it to have. In this case, the notion of “what works is true” is quite straightforwardly accepted and obeyed as the workability can be almost certainly justified by the apparent effects of hammering and the like.

Consider another research setting. A researcher is part of a research programme which aim is to enhance a company's performance by makings its financial function more efficient. Discussions with the company representatives have revealed that a great amount of money is contracted into the company's sales receivables. The researcher predicts that this has a significant impact on the company's profitability and



as an example points out the fact that the company has to constantly either loan the money or ask for deferred payment terms in order to pay for their own suppliers. This is, of course, causing additional interest expenditures for the company. However, the representatives consider this as a minor problem and do not believe that changing the invoicing practices would have any notable impact on the company's overall performance.

Despite the suspicions, the researcher is convinced that solving the problem of overgrown sales receivables would have a notable impact on the company's profitability. Familiarizing himself with the extant literature on the subject and investigating the current invoicing practices, the researcher comes up with an innovative solution to the problem that is both practically applicable and theoretically new. The solution contains, for example, process maps for the employees on how to conduct the tasks related to invoicing, debt collection and filing more efficiently, and information what tasks are unnecessary in those processes. However, only his believe in the solution does not suffice to make the research adequate neither in scientific nor in practical sense. Thus the researcher's task is to prove that the new solution works as he assumes it will work in a manner that assures both the sceptical managers and the academic readers.

What makes testing and hence validation different from the example presented above is the fact that the researcher is proposing a new way of operating as a solution to the problem which is a common result of constructive research in operations management and management accounting. Testing becomes difficult as the proposed solution – a mode of operation, which may consist of multiple different practices related to invoicing – is an abstract construction which realization depends on multiple factors such as the people and tools involved. Whereas the researcher in the previous example may use controlled laboratory environment to set up an experiment and observe how the material acts in different circumstances, in this case the testing environment is complex and constantly changing business organization. Even though the system itself would be designed perfectly, it is always unsure if the people are ready work according to the rules of the system or if they have understood it correctly. This causes instability in the results of the system's implementation.

It can be seen that the testing itself is an insecure enterprise due to multiple practical reasons. However, the real difficulty comes from the inability to see the effects of the implementation directly. In this case, for example, direct interest expenditures are not really the only thing that the current invoicing practices are affecting. Cash deficits show up as delays in payments to suppliers which results in distrust and that way to price increases and delays in deliveries. Increased borrowing rates, for one, weaken the company's balance sheet and hinders its position in the eyes of the banks and investors which ultimately may cut the company's investment possibilities and, thus, its profitability. As the consequences of the problem (i.e. inefficient invoicing) are this intricate, the effects of implementing the constructed solution will be intricate as well. In addition, without being able to see the improvements directly, the sceptics within the company as well as in the research community may question the validity of the research.

If the validation in this kind of setting is about empirically observing and distinguishing all of the effects that the implementation of the construction produces for the purpose of having sufficient evidence to be articulated in the research report, researchers are almost in an impossible situation considering their possibilities of validating their research. This cannot be good for a single researcher's publishing success or the credibility of the research approach in general. There is also a danger that if the functionality is the determinant of both practical value and validity, it will hinder the possibilities of furthering practice by means of research due to too strict requirements for evidence – what may be accounted as sufficient evidence for a practitioner may not be enough for an editor. Alternatively the danger from the scientific point of view is that it leads to erroneous knowledge if the scientific requirements are overpowered by the practical goals to which the developed theories seem fitting (Hammersley 2003a).

As the current guiding principle in the validation of constructive research is rather vague, the objective of this thesis is to figure out how the validation of constructive research ought to be done. Thus the main research question gets the form:

*Q: How constructive research should be validated?*

However, there cannot be validation without the concept of validity. In order to be able to validate anything it must be first understood what is it that is attempted to be validated. Validity in constructive research can be defined after finding out what the general definition for validity might be. Literature offers multiple definitions for the concept of validity and as one single general and uniform notion encompassing the scientific realm does not exist, the target of the validation varies in the discourse from the validity of findings to the validity of data. To be able to answer the main research question at the end of this thesis, the following sub-question needs to be answered first.

*SQ: What is the definition of validity?*

Moreover, to be able to apply the general definition of validity to constructive research, an understanding about this form of research needs to be obtained first. To address this issue, the profound nature of constructive research approach will be explored to understand the basis for validation in constructive research. This aim can be articulated more concisely in the form of another sub-question:

*SQ: What is the constructive research approach made of?*

The structure of the thesis is such that the sub-question presented last gets to be addressed first. Thus chapter 2 concentrates on depicting the nature of constructive research approach by exploring the methodological writings on it. In addition, as research on the constructive research approach and especially on its philosophical aspects has been fairly scarce, more general literature on methodology and philosophy of science has been widely exploited to analyse the constructive research approach. The second sub-question will be covered in chapter 3. A cross-section over the definitions of validity and an alternative for a universal conception found from the literature provide the grounds for the suggestion of the all-encompassing definition presented at the end of that chapter. Finally, chapter 4 begins with applying the definition suggested in chapter 3 to constructive research and after that the main research

question gets to be responded. The logic and the sequence of topics of this thesis are presented as a figure (Figure 1) in the next page.

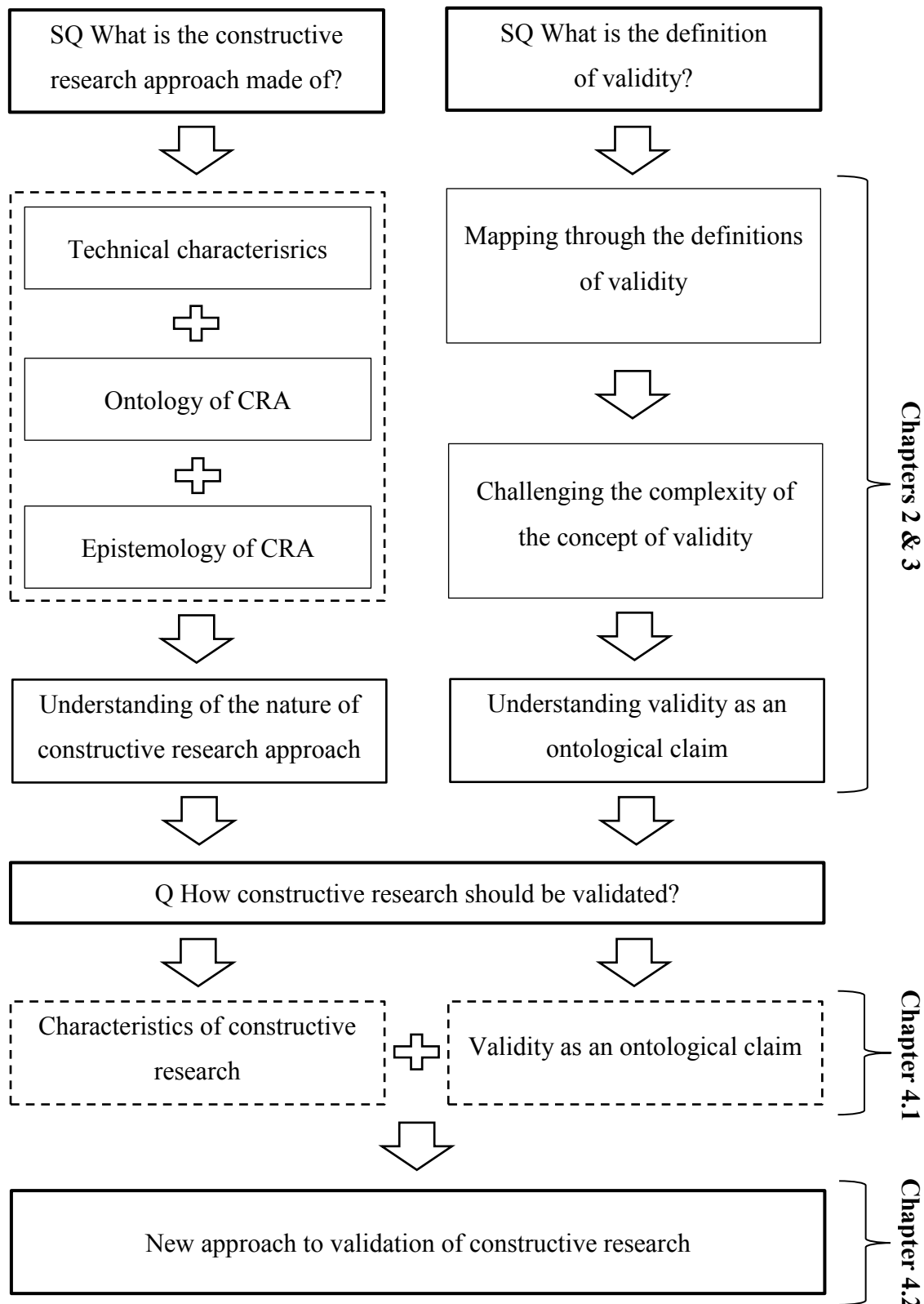


Figure 1. Logic of the thesis

### 1.3 Research approach

The aim of this thesis is to give a suggestion on how to validate constructive research. Thus this thesis involves doing research about research to inform the practicing researchers on how to enhance the quality and scientificness of their work. The research results are sought to be such that they could assist researchers on their questions on what they should do when validating their constructive studies. In the scientific research field this thesis locates somewhere in between *methodology* and *philosophy of science*. The former concentrates on studying the methods of science and the latter on exploring the scientific research process on more general level (Niiniluoto 1999: 21).

The research process has been very heuristic in nature. Philosophical inquiry is the most suitable approach depicting this research. Smith (1981) describes philosophical inquiry with the following sentences:

“In science, the testing of ideas takes the form of testing hypotheses. The major difference between philosophical inquiry and empirical science is that experiments are not performed in philosophic inquiry. The available literature is searched for fundamental ideas on the topic, the fundamental ideas are analysed, and the ideas are extended. Philosophic inquiry thus provides the basis for scientific experiments.” (Smith 1981: 43-44.)

The research has also included some features of concept analysis. The purpose of concept analysis is to develop concept systems further. The concept itself does not matter. Instead, the concept must serve some purpose, task or otherwise expressed need. (Olkkonen 1993: 65.) As has been said, validity obtains a multifaceted form in the literature and the conceptions about it vary especially between different research paradigms. As Puusa (2008: 39) notes, although the execution remains often incomplete, the analysis and scrutiny of the different meanings of a concept is particularly important as it enables at least partial commensurability. The concept of validity has been analysed in chapter three in order to be able to form the basis for validation in constructive research and to offer the reader an understanding about where my propositions on validity stem from. In a way, the concept of validity has been developed

further and its commensurability promoted as a suggestion for its general, widely applicable definition has been made.

Due to the approach, the written form of this thesis deviates from what is typically seen in accounting theses and empirical research in general. The structure is such that there are no separate chapters for the theory and empirical findings. This kind of sequence is rather common way of writing in the genres of methodology and philosophy of science (see, for example, Hammersley 2007; Klahr & Simon 1999; Maxwell 1992; Weick 1989). The analysis of the ideas related to the research topic are presented on an on-going basis rather than leaving the reflection only to the end of the report. The writing style has intentionally a subjective tone in it; after all, the thesis is founded so heavily on my own reasoning that it would be incoherent to represent them now with a passive voice. This hopefully serves especially the reader as the distinction between the ideas found in the theory and my own analysis can be made more easily.

Due to the heuristic nature and abductiveness (e.g. Miller 2003: 2) of the research process, a detailed account of each step that has been taken during the research process is quite difficult to provide as it has required multiple dead ends and new beginnings in order to reach the conclusion presented in this document. However, as Martyn Hammersley (2011a) expresses, "(...)the core meaning of methodology really is what you might call an on-going reflectiveness or thoughtfulness in doing research(...)". I have tried to pursue this on-going reflectiveness and thoughtfulness throughout the research process and this will hopefully open up to the reader in the course of reading this report.

Noteworthy is that during the research process the train of thought has been attached to the fields of operations management and management accounting even though all of the literature, especially on methodological and philosophical issues, was not specifically from these fields. Due to the commitment to these specific fields there may be issues that I have not considered that are yet important in the wider application of the constructive research approach. The main findings, however, are likely to be applicable for the constructive research approach in general.

## **2 CONSTRUCTIVE RESEARCH APPROACH**

The purpose of this chapter is to form the basis for the following chapters where the aim is to determine, what the definition for valid constructive research is and how it should be validated. Thus before entering into the topic of validation, the profound nature of constructive research approach will be revealed. This will be done by reviewing the technical norms related to conducting constructive research as well as the underlying philosophical assumptions. In addition to the purpose of contributing to following chapters, comprehensive understanding over constructive research approach will be attained so that the approach can be compared to other related research types. Making the distinction between constructive research and other forms of research will clarify why the validation should be discussed separately rather than as a part of a larger whole (e.g. “validity of case research”) at a time.

Methodological writings on constructive research approach to date have focused predominantly on the technical aspects of how the inquiry should proceed, leaving the philosophical issues largely out of discussion. Thus there is no existing body of literature, which puts across the epistemological and ontological assumptions inherent in the approach, where they could be picked up. But as Seale (1999: 50) puts forth, the answers to several methodological questions regarding the quality of research can be found in the research practice itself. Therefore also the philosophical assumptions guiding constructive research can be found from the technical writings just by scratching the surface a little bit. The chapter ends to a section, where the concept of research approach will be connected to the related concepts of methodology and method, to position it within the scientific discourse. Clarifying the meaning of these concepts enables to determine the comparability of different research types to constructive research.

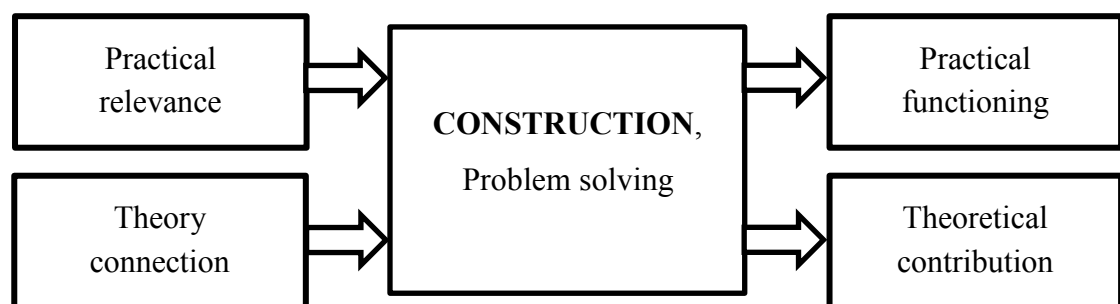
### **2.1 The core elements of CRA**

Constructive research approach is developed specifically in the field of business economics. However, it can be, and is, utilized also in other research fields than business economics. (Lukka 2001.) For example, in medical science it is used in developing



new drugs and treatments. Regardless of the field in which CRA is exploited, a common factor for all constructive studies is their aim of solving real world problems by developing solutions that have both practical and theoretical relevance (Kasanen et al. 1993.) These solutions are called *constructions*. A construction is an abstract concept, which can be realized with multiple, or even infinite, number of ways (Lukka 2001). A construction may be, for example, a model, diagram, plan, organization, artificial language, or aforementioned medical treatment. The constructions developed in operations management and management accounting research and thus, relevant for this thesis, are called social constructions, or more precisely, *managerial constructions*. Managerial constructions aim at solving problems that emerge in running business organizations (Kasanen et al. 1993).

Essential feature of constructive research is to find a practical problem that could be solved by an innovative construction (Kasanen et al. 1993). Developed construction should change the practice for better and offer something new to the scientific body of knowledge. It is thus a union of practice and theory from the get go which makes it an ideal research methodology for applied sciences like management accounting and operations management. Figure 2 illustrates the core elements of CRA (retelling Kasanen et al. 1993: 246).



**Figure 2. Elements of constructive research approach**

Kasanen et al. (1993) characterise CRA by dividing the research process into six phases. These phases are illustrated in figure 3. According to their suggestion, constructive research process should begin by finding a practically relevant research problem that could also be studied from the scholarly basis. Kasanen et al. (1993) do not offer any hints on where to find proper research problems for constructive studies

but fortunately the paper by Labro and Tuomela (2003) gives the reader some idea of the process.

By presenting two examples of constructive research, Labro and Tuomela (2003: 417) illustrate that the practically relevant research problem may be offered to a researcher by a company itself or a research gap may be identified from the literature that indicates that a particular area may be in need for addressing. In this latter case it is crucial to find a case company that has problems with the identified area. Problems should prove to be relevant also regards to the business. A scientifically interesting but practically trivial problem prevents the achievement of relevance of research. On the other hand, if the research problem is handed to the researcher from a company's side, its scientific value must be considered carefully. Otherwise the study may fall into the consulting category and remain outside the scientific publications. So, at least as important as finding a relevant practical problem is to firmly connect the problem into existing theory related to the topic. This theory connection ought to remain from the beginning of the research process to the very end of it in order to contribute to the research community (Kasanen et al. 1993; Labro & Tuomela 2003).

1. Find a practically relevant research problem which also has research potential

2. Obtain a general and comprehensive understanding of the topic

3. Innovate, i.e., construct a solution idea

4. Demonstrate that the solution works

5. Show the theoretical connections and the research contribution of the solution concept

6. Examine the scope of applicability of the solution

**Figure 3. Steps of constructive research**

Lukka (2001) has presented one additional phase to the constructive research process that is worth noting. According to Lukka (2001), in constructive research a balance between supply and demand should be reached implying that the research should be as meaningful for both research participants (i.e. the researcher and the case company). If it is not, the preoccupation for the needed long term cooperation may be in danger. Lukka (2001) offers some practical instructions of how to achieve the attachment to the research process which vary from establishing a research team to writing a contract.<sup>1</sup> However, the most important thing is to assure from the beginning, that the research problem is truly relevant from the company's as well as the researcher's point of view. Thus it all comes down to conducting the first step of the research process carefully.

The second phase in the constructive research process is obtaining a profound understanding of the research topic (Kasanen et al. 1993). Profound indicates that the researcher should familiarize himself with the theoretical underpinnings of the topic as well as the related practical issues such as the case company's explicit and implicit problems and objectives (Lukka 2001). There is perhaps infinite number of ways to conduct the theoretical and empirical orientation and hence there is no point of describing them all. It is up to each researcher to choose the best suitable methods. However, Lukka (2001) and Labro and Tuomela (2003: 422) mention that the empirical information gathering may be executed as in other research involving a case setting: through observation, interviewing, studying archival material, etc. No matter what way the researcher chooses to carry this out, the target should be on the operationalization of the problem area so as to enable the communication between the researcher and the case company (Lukka 2001). This means, for example, defining the research problem and the causes to it precisely.

Third phase of the research is the construction of a novel and innovative solution to the research problem (Kasanen et al. 1993). These epithets of "novel" and "innovative", evaluated from an objective perspective, are there to guarantee that the research will be able to achieve theoretical contribution. Some level of novelty is al-

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<sup>1</sup> Also Labro and Tuomela (2003) present an extensive account on how to assure the solid cooperation with the case company.

ways required as only applying some already existing model or tool to a new context does not pass as constructive research (Kasanen et al. 1993). This phase is particularly critical in the research process as if the construction cannot achieve the aforementioned features then there is no point of going further in the research (Lukka 2001).

Also the word “innovate” bears an important meaning as the solutions in constructive research should be innovated or developed instead of discovered (Lukka 2001). This stems from the idea that in the applied sciences the solutions are not lying out there to be discovered – instead, the purpose of the research is to develop the means with which the reality will be changed for the better (Niiniluoto 1993). How the researcher is ought to conduct this phase rests with his considerations. This phase of the research process is very heuristic in nature (Lukka 2001) and, thus, none of the writings on constructive research can give exhaustive instructions on how to conduct it. For the misfortune of the researchers, there is no such thing as the logic of invention (Niiniluoto 1983: 127). Therefore, the process of invention is always different depending on the situation and problem at hand.

As Lukka (1999: 141) puts it, constructive research should not merely remain as a theoretical outlining but testing the functionality of the developed construct should be an integral part of the research. This is the fourth phase of constructive research. A construction that works well in a paper or on a computer screen may produce totally different results in practice. The question of how the testing should be conducted has yet remained without a comprehensive answer. However, something has been said. Kasanen et al. (1993) argue that the practical adequacy of a construct is hard, if not impossible, to estimate without implementing the developed solution. Considering this argument, their solution to the validation problem – “*the market test*” – seems kind of odd, as in the weakest form of it a construction may pass the test if even one manager has shown willingness to implement it to his business (Kasanen et al. 1993). Hence, the weak market test does not even require implementation and it is questionable whether the practical adequacy of the construction can be established that way. That said, even though the developed construction would get implemented to case company, still the demonstration of its functionality or validity is not that straightforward (as was problematized in the introductory part of this thesis). These

issues being so central in the following chapters, I will leave further reflection to them.

Opponents of the constructive research approach have often questioned whether it is a scientific way of doing research at all or simply a form of consulting (Labro & Tuomela 2003: 411). This suspicion stems from the very normative nature of constructive research. *Normative research* aims at producing results that are able to guide practice either by cultivating the action or creating something new (Olkkonen 1993: 44). But the fact, that one of the cornerstones of constructive research approach is practicality, does not undermine the other aspect of the approach – the establishment of strong theory connection. In the fifth step of the research process the task of the researcher is to convince the reader that such theory connection actually exists (Kasanen et al. 1993).

According to Labro and Tuomela (2003: 432), in constructive research the theoretical contribution can be achieved through introducing totally novel means of achieving certain ends. This is the more desirable way of contributing. However, even though the construction itself would not be successful from the practical point of view, it may still offer something new to the scientific body of knowledge. In this case, the theoretical contribution is achieved through refining or even discarding old theories and proposing new theories (Labro & Tuomela 2003: 432). Thus it is important to report also failed constructions as they may offer important information for future research projects. This is also another aspect separating constructive research and consulting as usually in the latter activity only successful projects end up in the limelight. (Labro & Tuomela 2003.)

The final step in the research process involves considering the wider applicability of the developed construction (Kasanen et al. 1993). In other words, the researcher should be able to assess the generalizability of the research findings. According to Olkkonen (1993: 77), the developed construction should provide a solution to a whole problem type. Solving only one individual case does not offer a lot to the scientific realm. It remains unclear though, how certainly a researcher could state, that the construct will work beyond the case company. Thus a researcher conducting a

constructive research should abandon the idea of generalizability in its quantitative sense. Instead, more worthwhile could be conducting this final phase by reflecting the research findings in a theoretical level describing the conditions where the construction ought to work at least. This offers the reader important guidance in making the judgement of the construction's transferability. (Lukka & Kasanen 1995.)

## **2.2 Philosophical premises of CRA**

As yet, the philosophical writings on constructive research approach have been fairly scarce. In addition to the pioneering papers by Kasanen et al. (1991; 1993), only Lukka (e.g. 1999; 2000; 2001), Labro and Tuomela (2003) and Malmi (2010) have been noticeable contributors to the body of knowledge surrounding the constructive research approach. However, all of these authors have predominantly focused on the technical aspects of constructive research methodology dealing with the issues presented in the previous chapter. Philosophical considerations have not had much room in their papers. Hammersley (2011b: 22) asserts that in the early methodological writings on qualitative research "philosophical debates were generally presented as either already largely resolved or as of minimal practical significance for how research ought to be done". In the case of constructive research approach, the situation may have been similar than in the latter statement. Undeniably, it seems more important to focus on the practical guidance than to debate about philosophical issues in order to get any researcher interested in trying out an atypical methodology. Still philosophical writings have their significance in rooting a methodology into the scientific realm.

These issues will be discussed in this section with the help of the few statements found in the methodological writings on constructive research approach. Ontology will be dealt first because, as Guba and Lincoln (1994: 108) state, the answers to the epistemological questions are constrained by the answers given to the ontological ones and thus this kind of sequence seems more logical one. After the chapter on ontology, I will go on to the epistemological assumptions related to constructive research approach. Epistemology is a rich concept and it contains so many issues that this whole thesis could be about the epistemological nature of constructive research.

That is why some kind of outlining is needed to foreground the most important aspects of this issue. I have chosen to exploit the similar parse that Neilimo and Näsi (1980: 15) use to outline the nature of positivism. From the complete list I have sorted out the points relating to epistemology – the meaning of experience in the knowledge production process, scientific ideal, the objective of research and its findings, and the relation between the researcher and the research object – according to which I will analyse the constructive research approach.<sup>2</sup>

### 2.2.1 Ontology

*Ontology* refers to the theory of existence and, according to Guba & Lincoln (1994: 108), it is a question of “what is the form and nature of reality and, therefore, what is there that can be known about it”. Ontological problem can be compacted into two words; what exists? Answer to this question defines the reality and also the set of researchable phenomenon available for the researcher adhering to particular ontological presumptions. (Anttila 1998; O’Leary 2007: 180.) Ontological problem concerns especially abstract entities. Over things that we can see or touch a consensus about their existence is fairly easily achieved but abstract entities are always more controversial with this respect. (Vaihekoski 1994: 46; Niiniluoto 1999: 125; O’Leary 2007:180.) You would be fairly certain, that the dog standing in front of you really exists. A bit more trickier would be answering the question of how do you know, that the dog standing in front of you belongs to some particular species i.e. how do you know that such a thing as ‘species’ exists.

In this thesis the ontological problem will be reviewed with Vaihekoski’s (1994) comprehensive framework. The framework will aid in revealing the ontological assumptions related to constructive research and, thus, in locating constructive research approach into one of the ontological mainstreams that have sought to answer the question of what exists. Vaihekoski (1994: 47) divides ontological object entities into four categories based on two characteristics. First, the objects can be distinguished based on their physical existence to those that are physically observable and to those

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<sup>2</sup> In addition to the points mentioned in the text, Neilimo and Näsi’s (1980: 15) characterise the positivism by analysing its ontological premises, the key phases in the research process, the methodological decisions of the research practice, the approach’s general description, and its summation.

that are not. The other distinguishing feature considers the human effect on objects i.e. the objects are divided into those that are created by humans and to those that exist independent from us (Vaihekoski 1994: 28). This fourfold table classification is represented in figure 4.

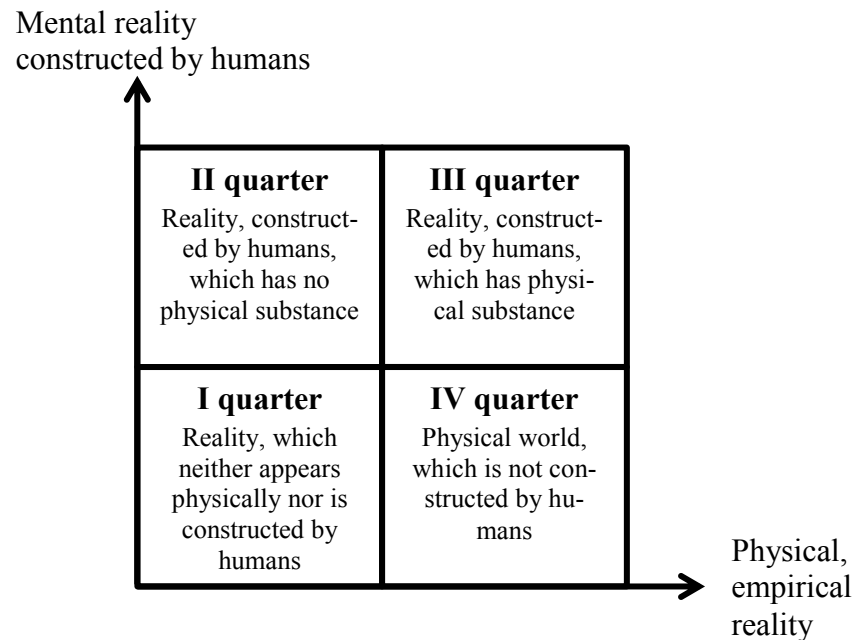


Figure 4. Ontological classification of objects

The first quarter represents *belief entities* such as soul, god and parapsychological objects. The fourth quarter, for one, contains *natural objects* e.g. animals, atoms, light, electricity and natural laws. Considering this thesis, the most important quarters are the second and the third, which both are composed of constructions created by human mind or action. The second quarter compounds of *sense objects* like knowledge, values and theories whereas third quarter represents the *action objects*. These are physical objects that are the results of human action (e.g. money, stock market) and also the human action itself. (Vaihekoski 1994: 47-48.)

So, what is assumed to exist if we think about operations management and management accounting fields in general? A fairly straightforward answer to this question is that the reality in these fields is formed by the business organizations. Justification for this statement is that neither of these fields as a practice or research disciplines would exist without the business environment. But the answer is not yet complete. We need to consider the form of these organizations further: do organizations exist



only as physical objects (machines, premises, products, employees etc.) or are they made of abstract entities (such as relationships and intercourses) as well? The answer to this question must be that the organizations exist only as a combination of these two elements: some physical objects are certainly needed, but so is communication, cooperation, networks, relationships etc.

Now when we revert to Vaihekoski's (1994: 47) ontological classification we can see that the reality in operations management and management accounting is composed of action objects and sense objects. But in particular, what does constructive research in these fields study i.e. what is the reality where the researchable problems exist and what kind of solutions does it provide? As also Vaihekoski (1994) puts forth, the most challenging part is to separate which objects belong to the second quarter and which to the third quarter. At first glance many of the problems that are studied in constructive research in operations management and management accounting may seem to fall into the third quarter and appear to have some kind of physical substance. Usually this, however, is not the case and it will be discussed next.

Operations management focuses on developing organizational practices and processes so that men, machines, methods, materials and money run smoothly within the system (Holstein 2008). Thus constructive research in the field focuses on improving the parts of the system to contribute to the performance of the overall system positively. A research problem might be, for example, that a product line of a company is experiencing declining profitability as the costs of the line are increasing with a higher rate than the profits. The solution, for one, could be some new *modus operandi* or a model of a new management programme that improves the operation of the "five M's". Thus, the problem and the solution represent the sense objects.

A typical example of constructive research from management accounting field is the creation of new budgeting system (Kasanen et al. 1993: 245). Also in these kinds of situations the problem within the company has something to do with the performance that a dysfunctional budgeting system is hindering. The problem may be, for example, that production planning does not work as the budgeting system, to where the planning based on, produces inaccurate or unreliable budgets and forecasts. The solu-

tion could be to change the budgeting practices<sup>3</sup> or the underlying rules according to which the budgeting system is operating. Also in this case, both the problem and the solution come under the sense objects category. At the end of the day, this revolving around the sense objects is the exact reason that makes the validation of constructive research in operations management and management accounting particularly problematic. As the effects of the implementations cannot be straightforwardly seen This is an issue that needs careful consideration when determining how the validation of constructive research should be conducted.

So, can constructive research be positioned into some of the ontological directions according to the whole approach's presumptions about the existence of the field of research? Constructive research is always about creating and changing things, events structures etc., whichever its field of application is. Thus there must be, at least in some level, an assumption about the real world where objects exists independently of our knowledge of their existence (Schwandt 2007: 256) for them to be changed. That someone does not know what "economy" means (which may very well be the case in some primitive cultures) does not eliminate its existence in the reality. Realist asserts that the concept of colour pink would not disappear even though all the items exhibiting that colour would somehow vanish from the Earth (O'Leary 2007: 218). In addition, pink as a concept is real in the sense that it is universal despite the various ideas about its appearance that different individuals may have.

In the previous case, a nominalist would think that such concept as pink does not really exist at all. There are only pink, individual things that we have chosen to call by the same name. (O'Leary 2007: 218.) A relativist, for one, would state that the existence of pink is relative to the time and space in which it is defined and thus pink cannot be a commensurable, universal concept. In relativism, each individual defines pink differently – for one individual pink may appear almost red and for some other, maybe in a better lightning or with different kind of sense of colour, as pale pink – in relation to the premises that one has and each description is equally true (Smith 2006: 260). An idealist goes even further in using mind as a determinant of existence as according to this position everything is a product of the mind (Schwandt 2007:

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<sup>3</sup> For example, from top-down to bottom-up.

143). Thus the colour pink exists only in our minds and one could just as well be imagining that some item is pink even though it is black in reality. From the idealist position we can never be sure about the real existence of even the seemingly material things around us.

The realism that is constitutive of constructive research should not, however, be confused to such variations of realism that, for example, direct realism represents. Direct realism assumes that only observable things in the material world exist (Schwandt 2007: 256) and, thus, cognitively constructed entities such as organizational culture do not exist. The ontological position of constructive research approach is more of a mixture of *metaphysical realism*, which posits that the world exists independently of consciousness (Schwandt 2007: 257), and *social constructionism*, which main premise is that social entities are created and maintained in interactions, and are culturally, historically, and linguistically influenced (Cunliffe 2008: 201). Also Kasanen et al. (1993: 249) note that all accounting concepts are socially constructed e.g. balance sheet book does exist in reality but without socially constructing its meaning it would only be a piece of paper or bits in a computer software.

### 2.2.2 Epistemology

Whereas ontology covers the problematic around the substance of reality, i.e. what exists, *epistemology*, in general terms, concerns everything that focuses on knowledge which is why it is also called the theory of knowledge. It deals with questions such as ‘What is knowledge’ and ‘How can we gain knowledge about the reality that we believe to exist’. It examines the concept, the origins and the species of knowledge, the possibilities and limits to achieve knowledge, and the reliability and validity of knowledge. (Kyrö 2003; Wolenski 2004: 4.) In this chapter the main focus is to define, what kind of knowledge constructive research is ought to produce and how is it supposed to do that. This discussion will aid our understanding about the rarely discussed constructive research’s philosophical premises and also work as an important input for the establishment of the guidelines for validation.

As was said in the beginning of this chapter, I will lean on the topics presented by Neilimo and Näsi (1980: 15) in analysing the issues related to epistemology of constructive research. However, departing from Neilimo and Näsi's (1980: 15-16) initial procedure, I will begin from the scientific ideal by pondering what it means within the fields of operations management and management accounting. It is a proper starting point as the ideal notably affects the aim of research conducted within different research fields (Niiniluoto 1999: 13, 60-63). Thus distinguishing the ideal helps to specify what the objectives of constructive research and its findings really are. After discussing what constructive research is supposed to do within operations management and management accounting fields, it will also be contemplated how it is supposed to do that. This will be done by addressing the meaning of experience in the knowledge production process and the relationship between the researcher and the research object.

It has been stated by many researchers that management accounting is an applied field (e.g. Davila & Oyon 2008; Kasanen et al. 1993: 252; Malmi & Granlund 2009; Mattessich 1995; Mitchell 2002). There was a time when management accounting research was dominated by positivistic science ideal and the aim of research corresponded to that ideal (Scapens 1990). Research was supposed to seek and verify the regularities occurring in the management accounting practice (Malmi 2005: 554) which led the management accounting researchers being the followers of practice instead of taking the leading position within the field (Parker 2012: 64). Now, in the era of acknowledgement of management accounting's applied nature, the researchers have called for expanding the aim from testing the previously formulated theories and from describing the social accounting phenomena to fulfilling the purpose of changing the practice while building scientifically relevant theory. (Malmi & Granlund 2009; Mitchell 2002.)

In operations management the identity crisis has not been that severe as in management accounting or at least it has not provoked that much discussion about the status of the field. The field has been perceived quite straightforwardly as applied without further justification (Hill et al. 1999; Meredith & McMullen 2008) – assuming that it has been seen as an issue even worth mentioning. That said, also operations man-

agement researchers have acknowledged that the research conducted in the field has deviated from its original purpose of serving the needs of practitioners with academically relevant research (Meredith & McMullen 2011; de Treville et al. 2008). Hence both of these two fields dealt in this thesis have wrestled with the same concerns of fulfilling the goal of an applied field.

According to Niiniluoto (1993: 5), the purpose of applied sciences is to produce knowledge to fulfil a specific purpose of increasing the effectiveness of some human activity. Unlike basic sciences, applied sciences do not intent to describe the world as it is to increase our knowledge and understanding of the reality. Instead, the knowledge produced through applied research works as a tool to accomplish some predetermined goal. Thus whereas basic sciences aim at producing statements that are of absolute value in themselves, the knowledge produced in applied sciences is worthless without a practical application – knowledge must have *instrumental value*. (Niiniluoto 1993: 5-6.) When considered in the context of applied sciences, Lewin's (1945) famous phrase “nothing is as practical as a good theory” (Lewin 1945 via de Treville et al. 2008: 15) could be seen as other way around; no theory is good if it is not practical.

The notion of scientific ideal contains also the idea of how the findings of research should be evaluated. The ideal of applied sciences promotes the view that the findings of applied research should be evaluated in terms of both epistemic and practical utilities. Thus applied science adds to the properties of correctness, informativeness and truthlikeness – which are common for basic science – the requirements of simplicity, manageability and cost-effectiveness. (Niiniluoto 1993: 5-6.) This indicates that even though the findings would be adequate by a general scientific sense, they may lack the value as the findings of an applied research if they are too expensive, too complicated or uncontrollable in practice. Thus truth is only an indication of the potential pragmatic success of the findings – not a testimony of it.

Constructive research is obviously an applied research approach considering its problem solving orientation and its aim of contributing to both theory and practice. Thus the scientific ideal of applied sciences and the objective of constructive research co-

here very well with each other. Constructive research's ultimate objective is to produce findings that can be stated in the form of technical norms (Kasanen et al. 1993: 253). Hence the results of constructive research are normative: they express how one should act in the current situation in order to achieve some desired state. The same thing can be said in the form of general technical norm: if you want A, and you believe that you are in a situation B, then you ought to do X (Niiniluoto 1993: 12; Olkkonen 1993: 56). Olkkonen (1993: 56) presents this logic as:

$$B \rightarrow X \rightarrow A$$

Technical norms presume that a causal relationship exists. Phenomena must have causes that produce certain ends: something has caused the situation B and in order to reach the situation A, these causes have to be manipulated with an action X. In constructive research this action X is the developed construction. If all these components (A, B and X) can be made explicit, then constructive research attains both explanatory and predictive power and has potential for producing prescriptive theory (Worren et al. 2002: 1233). As de Treville et al. (2008) point out, this kind of situation is interesting from both practitioner and academic point of view as practitioners find it particularly useful to be able to predict things whereas academics are interested mostly on explanation. Research that combines both of these factors is of value especially on applied research fields as it has a significant potential for producing practical theories (de Treville et al. 2008: 16).

Taking all this together it is quite conclusive that the interest of knowledge in constructive research is usually both technical and practical as Lukka (2001) brings out. Technical interest pursues knowledge about the regularities in nature and within the relationships between the humans and nature, i.e. the causal relationship just described, which could then be used to predict and control phenomena. Practical interest, for one, aims at understanding phenomena. (Lukka 2001; Niiniluoto 1999: 70-72.) Practical interest prevails especially in the early stages of the research process where the researcher is supposed to obtain profound understanding of the phenomena in question. As Worren et al. (2002) point out, descriptive accounts provide the starting point for intervention i.e. the researcher must first understand the current situa-

tion and its cause-end relationships before being able to change them. Lukka (2001) remarks, that constructive research may sometimes even contain a hybrid of all three Habermas's (1971) interests of knowledge so that the emancipatory i.e. critical interest is also present. It is perhaps rare, but not impossible, that the results of constructive research are so radical that they change our understanding of the reality around us in which case the critical interest of knowledge would also be fulfilled.

According to Lukka (1999: 141), the constructive research approach complies with the pragmatic notion of truth i.e. what works is true (James 2008). This notion of truth is not, however, that unambiguous than what it seems. James's theory of truth, promotes one of the indicators of truth (i.e. functionality, success) to the position of the *definition* of truth. (Niiniluoto 1999: 110-111.) Now it should be noted that although Lukka (1999: 141) remarks that pragmatic success and theoretical strength are the ideal that is pursued in constructive research, contribution may be achieved even though the results would not be "true" in this pragmatic sense. Functionality is requirement only for a technical norm to be true. But the research process may also produce, for example, knowledge about the means-end-relations within that setting which may be valuable input in future research (Lukka 2001). If the pragmatist theory of truth would be strictly followed, these kind of results would not be scientifically worthy as they are by definition untrue. The pragmatist theory of truth is hence applied to the technical norms, but other kinds of results that constructive research may produce are then evaluated according to *the correspondence theory truth* (Lukka 2001) which indicates that truth is some kind of correlation between a belief and a fact: a belief or an idea is true precisely when it corresponds to the reality (Niiniluoto 1999: 108).

Yet pragmatism is manifested also in other ways than in the theory of truth. According to James (2008: 29), pragmatism means "open air and possibilities of nature, as against dogma, artificiality and the pretence of finality in truth". In other words, pragmatism indicates a nonfoundationalist attitude towards building the scientific body of knowledge (Schwandt 2007: 208): whereas basic, foundationalist research aims at constructing the foundations of a building that are ought to last as long as the building exists, nonfoundationalist research aims at constructing all the other ele-

ments of the building (e.g. plumbing, windows, floors, ceilings) that can be replaced for newer and better ones as the time goes by. As the builder does not think that it is worthless to install the windows as someone will, maybe in a 30 years' time, change them, nor should the researcher think so either. The idea is that the construction may be the best solution currently known but nothing guarantees that it will stay so forever. Developed constructions are, thus, relative to the dimensions of space and time (Kasanen et al. 1993: 249).

When picturing the epistemology of constructive research, it is suitable to take into consideration also the meaning of experience in the knowledge production process as this aspect has been involved in the central epistemological debates between empiricism and rationalism (Sumner 2006: 92). These two stances towards the meaning of experience in the knowledge production process can be considered as the extreme positions. Whereas empiricism reckons only upon sense experience and – in its most extreme form – does not give any role to concepts and theories in the production of knowledge, rationalism holds the opposite. Rationalist doubt towards the deception of the human senses compels it to trust only reason instead of experience. (Markie 2012; Schwandt 2007: 83.) Constructive research does not adhere to either of these stances. Also in this respect it is in line with pragmatism which presumes that action is both the source and test of knowledge (Schwandt 2007: 83): in constructive research action is used as an input in generating the construction as well as in determining whether the construction works and what kind of conclusions can hence be made.

As epistemologies differ also in their attitude towards the role of the researcher (Schwandt 2007: 88), the final issue considered significant in relation to epistemological positioning is the relationship between the researcher and the research object. This relates to the subjective/objective divide which is rather different than in the ontological context. In the context of epistemology, *objectivity* means that the researcher is presumed to be a detached, value-free observer whose task is to discover the 'truths' that lie out there in the objective world (Guba & Lincoln 1994: 108). On the contrary, *subjectivity* denotes that the researcher is the instrument of both data collec-



tion and data interpretation (Patton 2002: 50) and that he is actually involved in constructing the researchable reality (Eriksson & Kovalainen 2008: 15).

It is quite evident that objectivity is not the ideal that constructive research approach holds. As Lukka (1999: 144) concludes, the relationship with intervention in constructive research is strong whereas an objective posture would aim to minimise the level of intervention. If we think about the concrete steps in constructive research process (Kasanen et al. 1993: 246) the subjective nature of this approach may be noted quite evidently. Step 3 “Innovate i.e. construct a solution idea” blatantly communicates, that the researcher’s task is not to be merely an objective outside observer. Instead, his task is to use his pre-understanding and knowledge obtained in the previous phase to develop a new construction – a solution that never existed before – into the world which is believed to exist. Objectivity is a hard ideal to be reached in this process when the task of innovation is based on the researchers own thinking and competence.

However, when it comes to pragmatism, the question about the relationship between the researcher and the research object is not considered too relevant. Pragmatism holds the view that research is not about detaching oneself from the reality and depicting it as accurately as possible. Instead, according to Hammersley (2003b: 847-848), it is about appreciating all cognition as worth considering in the task of helping individual organisms flourish in their relationship with their environment. Thus the position of the researcher may be as objective or subjective that is necessary – whatever balance is the best one in developing an adequate construction is the position that a constructive researcher should go for.

As a conclusion to the discussion on the epistemological nature of constructive research approach it can be stated that it relies quite evidently on pragmatism in its inherent assumptions. According to Hammersley (2003b: 847) “the core idea of pragmatism is that the meaning of any concept is determined by its practical implications; and that the truth of any judgement is determined in and through practical activity (...)”. This has some important implications. First of all, only research problems which resolution can make a difference to the reality are worth investigating. If the

world is the same with or without the knowledge obtainable through a research, then the research is not worth conducting.

Second, it is the practical testing of the construction that determines the contribution of the research. If it works, a technical norm can be established. If the developed construction does not work, then it should not be presented as such but to consider if the research offers some other valuable insights that may later help in solving that or some other problem. But everything that is done during the research process culminates in testing the developed construction. Thus the way the research is conducted, the relationship between the researcher and the research objective, the nature and correctness of data and so on, should not be in the centre of attention when evaluating the research. It is the construction and its test that matters.

In addition, central to pragmatism is the idea by Charles S. Peirce which Hammersley (2003b: 847) captures like this: “only what is open to *reasonable* doubt is questioned, not all that is open to *possible* doubt”. This means that much have to be taken for granted during an inquiry as otherwise nothing will progress. Similarly, what also needs to be accepted is that research is always fallible as acquiring knowledge about the validity of things is always uncertain. However, pragmatists believe in self-correctiveness of inquiry and thus, the errors will eventually emerge and they will be corrected then. (Hammersley 2003b: 847.) And if they do not emerge, then they do not matter: “if no practical difference whatever can be traced, then the alternatives mean practically the same thing, and all dispute is idle” (James 2008: 27).

### **2.3 CRA in relation to other concepts**

In addition to the purpose of serving as a base for further discussion on validity, this chapter aims to justify why constructive research should be treated separately from other research approaches at least in the discussions relating to the validation procedures. To achieve this end, a comparison between different research approaches will be made considering their aims and standpoints to the question of truth. This will illustrate the profound differences that rule out the similarities and, thus, entitle the propositions ignoring the current modes of validation. However, before getting into

the stage of comparison, the concept of constructive research approach will be reflected to other related concepts in order to determine what the “approach” actually means. This should also reveal the rationale for the use of the terms methodology and method in relation to constructive research. The discussion will also help in determining, what should be used as a comparison for constructive research approach.

In the preliminary paper on constructive research approach, Kasanen et al. (1993) use the term *approach* as an epithet for constructive research. Literature does not, however, offer any explicit definition for the term which may be one reason for the confusion surrounding constructive research approach. In the same paper, Kasanen et al. (1993: 252-257) discuss separately about the methodological nature of constructive research and a similar division is seen in the paper by Lukka (2001). Lukka (2000: 114) also states, that constructive research approach can be seen in two differing ways: as a methodological approach and as a particular mode of conducting field research. In addition, Oyegoke (2011: 574), for example, describes constructive research approach as “a problem-solving method”. What these different terms actually mean is the question that will be discussed next.

The term *method* is used to specify a certain procedure for generating quantitative and qualitative data. Methods are the technical practices used within inquiries, for example, for data gathering, interviewing and analysing. At the simplest, method is only a tool as a hammer is but to use it effectively one must be aware of the limitations related to each tool. Thus the concept of method may also contain the knowledge about the correct use of the method and the description of the context in which it is suitable for use. (Payne & Payne 2004: 149; Schwandt 2007: 194.)

The definition for the concept of method hence indicates that the constructive research approach cannot actually be called as method as Oyegoke (2011: 574) suggests. Constructive research approach does not offer any explicit rules or guidance on how the problems should be solved within the course of the research. It only describes the steps that are usually present in the research process but it is left for the researchers to decide how they attain the required knowledge, construct the solution and test its workability. To be a method, a procedure must be defined in a fairly strict

and practical basis which does not leave much room for discretion for each individual researcher. This is not the case for the constructive research approach and calling it as a method gives a false impression of its real nature.

Generally *methodology* refers to the study of methods (Payne & Payne 2004: 151). It has also been described as the philosophy of methods (Jupp 2006: 175) or in a broader sense as some kind of guideline that a researcher follows when conducting an inquiry (Payne & Payne 2004: 151; Hammersley 2011a). All these descriptions of methodology are correct but they describe a little bit different sides of the concept. The study of methods is what Payne & Payne (2004: 151) mean by saying that "methodology deals with the characteristics of methods, the principles on which methods operate, and the standards governing their selection and application". On the other hand, the second characterization is more philosophical in nature including the analysis of the assumptions, principles, and procedures in a particular approach to inquiry (Schwandt 2007: 194).

Hammersley (2011b: 20) sees that from the literature on methodology three broad genres can be identified: methodology-as-technique, methodology-as-philosophy and methodology-as-autobiography. Writings in the category of methodology-as-technique include practical guidance on how to pursue research. Methodology-as-philosophy, for one, concentrates more on in-depth issues such as ontology and epistemology. Methodology-as-autobiography category is presented to include writings that describe how some particular inquiry was conducted. (Hammersley 2011b: 20-30.) While describing the constructive research approach, also Kasanen et al. (1993) as well as Lukka (2001) seem to have differentiated the categories of methodology-as-technique and methodology-as-philosophy.<sup>4</sup> Although these themes are also partly blurred within the texts, the point that I am trying to make here is that an expression "approach" seems to combine the methodology-as-philosophy and methodology-as-technique categories. An approach – rather than being just a collection of methods suitable for some form of research – is a comprehensive account of some research procedure that includes both practical guidance as well as reflection over the implicit

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<sup>4</sup> In Kasanen et al. (1993) the methodology-as-technique part appears clearly on pages 245-248 and the methodology-as-philosophy on pages 252-260. In Lukka's (2001) paper a chapter called "Methodological nature" represents clearly the methodology-as-philosophy category.

philosophical assumptions affecting the research. The concept of an approach seems to coincide with methodology when it is understood in a broad sense, that is, as a combination of the two definitions presented in the previous paragraph.

If we think constructive research as an autonomous research approach then it parallels with the components of, for example, Neilimo & Näsi's (1980) classification of established accounting research approaches to which also Kasanen et al. (1993: 255-256) refer in their paper. Neilimo & Näsi's (1980) classification contains four different research approaches, namely conceptual, nomothetical, decision-oriented and action-oriented. These approaches are classified on the scales of descriptive-normative and theoretical-empirical. Kasanen et al. (1993) analyse that the constructive research approach is the most empirical and normative from these comparative approaches. Usually modes of validation are, however, defined for particular research types instead of e.g. for the aforementioned approaches. For example, Yin (1984) has established tactics for dealing with internal validity, construct validity, and external validity specifically in case research. As case research can be conducted within the framework of both nomothetical approach and action-oriented approach, a comparison made on the level of approaches is not legitimate considering the requirements of this chapter.

Lukka (1999; 2000: 114) has suggested, that constructive research approach could be treated, in addition to an autonomous approach, as a form of case/field research. He parallels it with ethnographic research, grounded theory, illustrative case research, theory testing case research, and action research (Lukka 2000: 114). Paralleling constructive research to these is perhaps the reason that has led some researchers to evaluate their constructive studies with criteria often used within other types of case/field research<sup>5</sup> without questioning their suitability for this rather distinctive type. Noteworthy is also that Baldvinsdottir et al. (2010: 81), for one, call constructive research as an action research approach whereas Lukka (1999; 2000) evidently regards also action research as a subordinate to case research. This kind of mixing of concepts leads easily to confusion among the researchers. Thus it seems necessary to

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<sup>5</sup> For example, Lanning (2001: 152-156) has used Yin's prevalent criterion to evaluate the validity of the findings in his doctoral dissertation.

point out the main differences of these case/field research types that may affect the appropriateness to use similar validation strategy for all of them. The general definition for case research provides common ground for these rather distinctive case/field research types and justifies their labelling into a single category. Further comparisons, however, illustrate that there are also some innate philosophical assumptions that impede the treatment of case/field research types as a uniform group where validity and validation could be comprehended homogeneously.

The core of multiple definitions for case study research is that they study a small number of cases and often only one case at a time in considerable depth (Hammersley 2003c: 92; Payne & Payne 2004: 31). In operations management and management accounting this often means that the researcher concentrates on one single company instead of, for example, gathering data from multiple companies in order to build theories concerning a certain industry. Yin's (1984:23) definition for case study is also intended to capture the whole range of different kinds of case studies. He defines case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used". Adding these features together provides a relatively all-encompassing definition of the overarching characteristics of ethnographic research, grounded theory, illustrative case research, theory testing case research, action research, and constructive research.

Apart from constructive research, common for these case/field research types is their action analytic approach to inquiry (Lukka 1999: 137) which means that they focus on analysing the current state of affairs in order to learn something from it. Constructive research, for one, used the analysis and learning to a further purpose of changing the reality. Ethnographic research is perhaps the farthest from constructive research in a sense that it really concentrates on depicting, explaining and interpreting social phenomena (Lukka 1999: 137) as they are without superior targets. Its strength is in description; it offers a detailed picture of what is going on (Fetterman 2003: 328), whereas the analysis is not in a central role in this research type. Theories are not in any way central in this research type; ethnographic research is often conducted in sit-

uations where there are only little or no theories at all to be exploited in the inquiry. However, nor theory development is either a requirement or even customary in this research type. (Lukka 1999: 137.) Hence in ethnographic research the interest of knowledge is clearly hermeneutical; it aims at understanding and interpreting the world as it is as to expand our knowledge about it (Niiniluoto 1999: 71-72; Schwandt 2007: 136).

Also grounded theory research, illustrative case research, and action research aim at understanding social phenomena. In grounded theory the empirical data is used to form theories which could better explain the real-world situations and thus aid our understanding about them (Douglas 2003; Goulding 2002: 55-73, 102-132). In illustrative case research the aim is also in better understanding which can be achieved by applying different theories to the analysis of social phenomena (Keating 1995: 71). Also action research can be seen to pursue for the hermeneutical objective of understanding: the rationale in action research is that complex social structures and processes are best understood by producing changes into them and then analysing the impacts of the changes (Lukka 1999: 141). In relation to theory, illustrative case research and action research lean more on the existing theories than grounded theory. On the other hand, the theory development in grounded theory research is the most target-oriented so that the novelty value of the theories are usually higher than in illustrative case research and action research which excel more in the theory refinement category (Keating 1995).

Theory testing case research is classified to the action-analytic category, too, but its interest of knowledge deviates from the aforementioned. The rationale of theory testing case research is to analyse critical cases<sup>6</sup> and that way either confirm or refute well-established theories (Keating 1995: 72-73). Thus it seems that its knowledge interest is less hermeneutical and more emancipatory; it aims at freeing ourselves from erroneous knowledge. Relation to theory is strong but as the name indicates, the aim is to test theories instead of building new ones.

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<sup>6</sup> According to Yin (1984: 141), critical cases may be, for example, cases with two rival positions in relation to some theory or, in a single case setting, a case that suggests a contradictory view compared to established theories.

As was said in chapter 2.2.2 constructive research does not aim directly at neither hermeneutic nor emancipatory interests of knowledge even though some research phases may be driven by these two. Instead, constructive research holds the technical interest as its main interest of knowledge meaning that knowledge must have instrumental value which enables us to act to our best potential. So the fundamental aim of constructive research is clearly one thing that separates it from the other types of case/field research. Strong theory connection from beginning to the end and ability to generate novel theory is also held as a requirement for good constructive research (Lukka 2000: 114, 122) which makes it the most theory-emphasizing type of case/field research. These ideas are gathered in table 2, where theory connection – column is a representation from Lukka's (1999: 144) paper.

In addition to the aforementioned aspects, other case/field research types can be distinguished from constructive research by looking at the different theories of truth that they seem to follow<sup>7</sup>. In chapter 2.2.2, constructive research was stated to comply with the pragmatist theory of truth which indicates that what works is true and in some cases also the correspondence theory of truth. Other forms of case/field research do not share the same kind of standpoint which can be inferred from their different kind of aims and interests of knowledge. Ethnographic research is the most obvious one when defining its truthfulness. As the aim mainly to provide descriptions about the real-life phenomenon in question, the truthfulness of that description depends on the researcher's ability to see the things as they really are instead of seeing as he believes they are. Thus, ethnographic research adheres to the theory of correspondence.

In grounded theory research, illustrative case research, and theory testing case research the theory of truth is the same as in ethnographic research. Even though the inquiry does not limit itself to mere description but there is also analysis involved, the truthfulness of the research depends still on seeing the case situation undistorted so that there is an opportunity to analyse it rightly. One cannot, for example, refute a theory on the basis of a case that does not even really exist i.e. case that is formed so

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<sup>7</sup> I consider only the neoclassical theories of truth (although there would be also others available) (Glanzberg 2009) as the aim is only to point out the heterogeneity case/field category instead of conducting a deep analysis of each individual type.



*Table 1. Key differences between the case/field research types*

	Interest of knowledge	Theory of truth	Theory connection
Ethnographic research	Hermeneutic	Correspondence	Variable; used to aid interpretations
Grounded theory	Hermeneutic	Correspondence	Theory development as a target
Illustrative case research	Hermeneutic	Correspondence	Chosen theory as a starting point for everything; aims to demonstrate its applicability
Theory testing case research	Emancipatory	Correspondence	Theory testing
Action research	Hermeneutic	Correspondence	Theory development possible but not a requirement
Constructive research	Technical	Pragmatist (Correspondence)	Developing theoretical contribution is the ultimate aim

that there is no correspondence between its description and reality. In addition, despite the fact that action research is closer to constructive research as it also aims to change the reality at hand, the change for better is not of absolute value but the understanding, which comes within the change, is. Pragmatist theory of truth does not sit that well for action research as it does for constructive research; what works is true holds good for the technical norms produced in constructive research but for the descriptions about the change situations that action research is ought to produce this kind of functionality requirement is just not compatible.

Whether or not to evaluate all case/field research types in a uniform manner should be determined based on at least as much to the differences as to the similarities within the group. In the case of constructive research, the differences outweigh its similarities with other case/field research types. Thus, validation of constructive research should be conducted in a way that acknowledges its unique characteristics in relation to the interest of knowledge and truth.

### 3 VALIDITY – THE BASIS FOR VALIDATION

This chapter deals with the concept of validity. First, an overview on the different definitions of validity will be presented to demonstrate the diffused state of the concept. After that, a conception of validity that is proposed to be applied to constructive research will be introduced. The final section in this chapter concentrates on analysing the suitability of the proposed conception to constructive research.

#### 3.1 Definitions of validity

Going through the definitions for the term *validity* is a confusing task. Over the years, researchers within different disciplines advocating different approaches and methodologies have developed so many interpretations of the term (Winter 2000) that clearly a severe embarrassment of riches exists. Especially divergent definitions for the concept have been presented between qualitative and quantitative researchers (Avis 1995) although almost as much dispersion is seen also within both of these research streams. Therefore it seems that in its current state “validity is not a single, fixed or universal concept, but rather a contingent construct, inescapably grounded in the processes and intentions of particular research methodologies and projects” (Winter 2000).

Due to the multiple definitions existing in the literature, I will begin opening the concept of validity from its dictionary definition. According to MOT Collins English Dictionary (2009), validity as a term originates from the Latin word *valēre* – to be strong. Being valid means having some foundations or being based on truth (MOT Collins English Dictionary 2009). Knowing its origin it is not a surprise that despite the numerous definitions of validity, when the term occurs, it always seems to point into different nuances of strength. If an argument, statement, procedure etc. is said to be valid, it commonly means that it is based on some kind of proof and thus, is sound, cogent, well grounded, justifiable, or logically correct (Schwandt 2007: 309). But that is where the cohesion of the definitions and meanings usually stop.

As quantitative research restricts its research scope to what can be measured or quantified (Winter 2000), the notion of validity within quantitative researchers is usually related to measurement. A general definition for validity within quantitative researchers is that validity is a question of whether the study measures what it is supposed to measure (Anttila 1998; Borsboom et al. 2004: 1061; Golafshani 2003: 599; Lewis 2009: 3; Olkkonen 1993: 39; Winter 2000). This kind of definition for validity complies with the epistemological theory of correspondence which definition was presented in the previous chapter. One can, for example, ask whether measuring tape measures the height of people as that is the property that one intends to measure. It is a generally known fact, that measuring tape can be used to measure height, but if the researcher would have been ignorant and would have tried to measure height with scales, then the study would have ended up being invalid.

Although several books and articles on methodology offer the aforementioned definition for the concept of validity, Borsboom et al. (2004: 1061) argue that validity theorists have taken the question of validity from whether one measures what one intends to measure – which is the most widely exploited definition among the practicing researchers – to whether the empirical relations between test scores correspond to theoretical relations in a nomological network (e.g. Cronbach & Meehl 1955: 290) and whether the actions taken based on the test scores are justified (e.g. Messick 1988: 39-40). In the former case the question of validity is: do the measures at hand act in a way they were expected to act considering previously established theories. In the latter notion, for one, validity is about the consequences of the use of the measures in certain circumstances, not the measures per se.

In neither of these definitions validity is about the test itself. Rather it is determined referring to external factors outside the measurement. In addition, these definitions of validity comply with different epistemological theories of truth. The latter conception relating to the consequences leans more on the pragmatist theory of truth according to which truth is the same thing as practicality and success (of the test score use) (Niiniluoto 1999: 111). The *theory of coherence*, which states that the truth of a clause (in this case measurement score) is determined by its fit with the system made up of other clauses (Niiniluoto 1999: 110), illustrates the conception involving nomologi-

cal networks. Taking the truthfulness as the question of coherence can, in the worst case, lead to dogmatism where even erroneous theories can steer the progress of research as they are used as the reference point in determining the truthfulness of new theories. Moreover, it does not actually advance the development of new theories if everything new is dependent on the nomological network of old theories. A requirement of coherence with the nomological network is not exactly the breeding ground for revolutionary discoveries.

Validity is recognized as a legitimate concept also among some qualitative researchers (Maxwell 1992: 280). Those who support this view define validity, for example, as the question of whether the researcher sees what he thinks he sees (Kirk & Miller 1986: 21). This conception is similar to the most widely used quantitative definition involving the question about measurement, and it stems from the idea that in qualitative studies the researcher is the measurement instrument and the validity is about correctness of that instrument. Like its quantitative counterpart, this qualitative definition of validity complies with the epistemological theory of correspondence.

In addition to the group promoting the above presented view, qualitative researchers can be categorized into two other groups based on their stances to the question of validity. One of them sustains that the quality of qualitative research must be assured in a similar way as in quantitative research but that the concept of validity, obtaining such a positivist and realist tone, must be replaced by a qualitative equivalent (Maxwell 1992: 280; Seale 1999: 43). This has led to an abundance of substitutive concepts that are hoped to better address the quality issues of qualitative research which guiding philosophy often stresses creativity, exploration and other informal procedures (Seale 1999: 43). Qualitative methodologists have excelled especially in this area (Cresswell & Miller 2000: 124), which has resulted in a messy field of different concepts replacing validity.<sup>8</sup>

The third distinguishable category within qualitative researchers is the group that represents the view that validity or any analogous concept is neither legitimate nor

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<sup>8</sup> In the literature often occurring approximate equivalents for validity are, for example, trustworthiness and authenticity (e.g. Guba & Lincoln 1989).

useful in qualitative research (Maxwell 1992: 280). The group has totally rejected even the so called interpretivist substitutes for validity. It has ended up doing so as any limitations to knowledge production is seen detrimental in an extreme relativist view (Seale 1999: 46). Seale (1999:46) argues that scientific criteria have been replaced with political judgements of the value of research and continues that this ends up in the abandonment of the research enterprise – research losing its scientific status and withering to the level of mundane reasoning.

Confusion is well and truly what one gets when ploughing through the definitions of validity. As if that would not be enough, the disintegration does not end in the definitions of validity; after the definitions the reader is confronted with different typologies of validity. This means that validity is decomposed into different types of validity, like measurement validity, internal validity, external validity (Seale 1999: 32), descriptive validity, interpretive validity, theoretical validity (Maxwell 1992), translation validity, criterion-related validity, and nomological validity (Netemeyer et al. 2003: 72) – just to name but a few. This list could go on and on especially if the qualitative substitutes for validity would be added to the queue. In addition, to make things even more complex, these validity terms with different epithets come with the package of criteriology which are as diverse as everything else related to the topic of validity<sup>9</sup>. Boyd (2008: 697) has gathered an astonishing amount of the terms related to validity to what she terms “a jargon wheel” but I bet that even that is not enough to aggregate them all.

It is almost tragicomic, that the purpose of the definition of validity is only to tell what validity as a concept means; it is a question of *semantics*. This deviates from the *methodological* question of how to get information about the existence validity. (Niiniluoto 1983: 218.) Although we would know the semantics of validity, it does not guarantee that we are able to find out about it and that way able to distinguish valid research from invalid research (Niiniluoto 1999: 110). So the issue of validity has got this complicated already before we have even discussed about different ways of knowing about the different types of validity and what to do to improve the validi-

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<sup>9</sup> For different kinds of criteriology see, for example, Guba and Lincoln (1989) for qualitative criteriology and Netemeyer et al. (2003) for quantitative criteriology.

ty of research. It seems to me that Borsboom et al. (2004: 1061) are not exaggerating in saying that “validity theory has gradually come to treat every important test-related issue as relevant to the validity concept and aims to integrate all these issues under a single header”. I would rather confront the validity problem of constructive research in a manner that would not make the things even more complicated. Therefore the conception which Borsboom et al. (2004) are suggesting to clear out this muddled field of validity is worth studying more profoundly. Maybe it will help in answering the question of what are we talking about when we talk about the validity of research and, thus, offer a solid basis for validity and validation of constructive research.

### **3.2 Validity as an ontological claim**

Validity has traditionally been perceived as an epistemological question (Avis 1995; Kyrö 2003; Wolenski 2004: 4) meaning that it has concentrated on establishing the means of attaining validity in scientific studies. What follows is a general belief that the validity of research can be established empirically following some proposed procedures. For example, in the book “Doing Management Research” Drucker-Godard et al. (2001:196) offer researchers “some methods that can be used to improve the validity and reliability of their work”, which indicates that validity is something that can be generated by researchers’ actions. This kind of conception is present among many researchers regardless of the form of research: whereas quantitative researchers establish the validity of their studies by statistical analysis (Borsboom et al. 2004: 1062; Rossiter 2005: 24), qualitative researchers usually attempt to secure the research process from different validity threats using various tactics such as pattern-matching (Yin 1984: 36) and triangulation (Modell 2005: 232).

However, Borsboom et al. (2004) argue for a rather different conception of validity. What they suggest is that validity and its presence in research is not an epistemological question at all. Instead, validity is an ontological claim concerning whether the suggested causal relationship exists or whether it does not. Borsboom et al. (2004: 1061) call for the validity concept which states that “a test is valid if it measures what it purports to measure”. Here is their conception of validity:

“If something does not exist, then one cannot measure it. If it exists but does not causally produce variations in the outcomes of the measurement procedure, then one is either measuring nothing at all or something different altogether. Thus, a test is valid for measuring an attribute if and only if (a) the attribute exists and (b) variations in the attribute causally produce variations in the outcomes of the measurement procedure.” (Borsboom et al. 2004: 1061.)

It seems rational, that the existence of an attribute that we are studying is a prerequisite for the validity of research. It would not make sense, whichever the research design is, to state that “the research analyses X” in pursuance of claiming that it is irrelevant considering the validity of research whether X exists or not. The attribute, that is being analysed, interpreted, tested, illustrated, depicted, explained or whatever the verb that is connected to that attribute, must always exist for the research to make any sense and it is thus definitely a requirement for all research to be valid.

The theory of validity advocated by Borsboom et al. (2004: 1069) is, thus, based on ontology, reference and causation instead of epistemology, meaning and correlation. The justification for the validity as an ontological rather than epistemological issue can be inferred in the following manner: The ability to find out about reality is an epistemological question. Thus the ability to find out about causal relations i.e. about the validity of one’s research is an epistemological question. Finding out about validity is the same thing as validation. Because validation is an epistemological issue, the ability to conduct this action is dependent on the truth of the ontological claim. Validity must be there in order to be able to find out about it. However, the ontological claim, i.e. validity, is conceptually different from the epistemological process of finding out about it, i.e. validation (Borsboom et al. 2004: 1062).

Another issue that is holding the field in its current conceptions is the confidence in nomological networks as a determinant of validity. According to Borsboom et al. (2004: 1063), the reliance on the nomological networks stems from logical positivism and the mission to separate metaphysics from theoretical terms. Logical positivists advocated the idea that it would be possible to construct a logically correct language which would readily distinguish meaningful and meaningless propositions (Schwandt 2007:183). When the meaning of a latent attribute is determined only by

its position in the network of relations of other attributes, then there is no need to ponder these questions in reference to reality, which would inevitably bring the metaphysics into play.

The requirement of reference means that the attribute to which the researcher refers must exist in reality (Borsboom et al 2004: 1063) and not just in the nomological network of language. Such research cannot be valid that claims to examine the speed of Finnish unicorns because unicorns do not exist. The requirement of reference does not, however, imply that the attribute cannot change over the course of time (Borsboom et al. 2004: 1063). Many attributes in research are relative to time and space. Once the meaning of the concept of money indicated squirrel skins, today it indicates bills, coins and balances, and in future it may indicate some other thing. This fact does not prevent us from saying that money is real; it just reminds us that the attribute to which one is referring to must exist in the moment of the claim is being made whatever the meaning at that moment might be.

As was conveyed in section 3.1, it is an odd way off thinking that science could progress if the truth – and validity in this case – of novel research would be dependent on the nomological network of relations determined by previous research. Where did this network come in the first place? More precisely, is the starting point of that network invalid as the first research has had to manage without a nomological network because it did not exist then? And if the foundations are invalid, is all later research invalid, too? In theory formation it is important to think about the way an attribute relates to other theories (Borsboom et al. 2004: 1064). But if one is to consider the nomological network as a constituent of validity, he should be able to answer these seemingly wacky questions just presented. Or one could just claim the origin of nomological networks as one of the great mysteries of our time like the early development of our universe or god. Or perhaps these questions would just be considered irrelevant and the questioner ignored.

What is meant by causality then? Cause is a phenomenon that either produces or aids in the production of other events (Brewer & Hunter 2006: 124). Causality, defined by Hammersley (2008: 1), means that “one type of thing (X) tends to be followed by another (Y), and that this occurs as a result of some force exerted by the occurrence



of an X, rather than by happenstance”. This definition does not, however, assume that X must always lead to Y or that Y is always caused by X and hence it does not include a requirement for strong sense of causality (Hammersley 2008: 1). Even though Borsboom et al. (2004) do not explicitly take a stand on the issue, it does not come across at any point in their paper that the causality they are implying should be comprehended in the strong sense either. They stress causal thinking over correlational thinking because it prevents us from thinking that everything causes everything else and hence that, to some degree, everything is valid for everything else (Borsboom et al. 2004: 1066).

Problem in correlational thinking is that it will easily lead to a situation where a test can be stated to be valid for measuring all too many things as correlations can be found from places that they should not mean anything, or at least not validity. The problem of correlation as a determinant of validity can be illustrated with an example concerning ice cream consumption and number of drownings. These things most likely correlate with each other, as both of them are likely to increase during warm summer months, but causal relationship is not what connects these two events together. Thus, despite the correlation, ice cream consumption cannot be used as a valid measure for determining the other attribute, and vice versa. Borsboom et al. (2004: 1066) note that “correlations are epistemologically relevant because they are sometimes indicative of causality, but they are not, and cannot be, constitutive of validity”.

In measurement, correlational thinking has had an unfortunate pair as it has been equated to degrees of validity; the bigger the correlation coefficient, the stronger the validity. However, this widely accepted view that validity comes in degrees (i.e. Cronbach & Meehl 1955; Messick 1989) is problematic both in quantitative and qualitative research with or without correlational thinking. That validity comes in degrees is linked to the idea that a researcher is able to affect it by using different methods. However, what Borsboom et al. (2004: 1070) are proposing is that the question of whether an attribute exists and has causal impact on the measurement outcomes is not a question that can be answered with degrees. Rather the answer should be in a “yes” or “no” form. They note that this approach is able to bring the

quantitative and qualitative fields closer together as validity is no longer a matter of degree that can be achieved through statistical analysis and expressed in numerical terms. Validity is an either-or question, and the answer to it is always qualitative.

Ignoring the above-mentioned arguments has led to a situation where the question of validity has become the question of validation i.e. to a belief that validity is validation. I contend that this has had a significant impact on the dispersion of the attitudes towards validity. Borsboom et al. (2004: 1062-1063) argue that there are no universal characteristics of measurement except for the ontological claim that there is an attribute out there that is playing a causal role in determining what values the measurements will take. How one is able to know about the existence of that causality varies depending on the situation.

The misunderstanding that validation, which is a situation-dependent issue, can be formed into a universal mould and which then becomes the determinant between scientific and unscientific research is a plausible cause for the negative attitudes towards validity especially among social scientists (both qualitative and quantitative)<sup>10</sup>. It is as exclusionary view as that there is only one “scientific method” (Schwandt 2007: 192) that all research should obey if it is to be regarded as scientific. Widely acknowledged exclusionary view is logical positivism that has underrated other ways of doing research and contended that there are only two legitimate forms of producing knowledge: logical analysis and empirical research (Schwandt 2007: 183). As a result, some researchers have waved aside the rules of the positivists and, in pursuance of this, the whole concept of validity (e.g. Maxwell 1992: 279). But the claim to be made here is that from the starting point any form of research is not more valid than the other only depending on the world view it is advocating. Though in some settings it is easier to prove that the causal relationship exists (i.e. the validation is easier) it should not be taken as a truism that this is always the case for some particular form of research. This goes to the methods too: there are no superior methods that always yield knowledge as, for example, logical positivist would think. Methods must always be suited to the occasion. And note that this is a two-way street: that

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<sup>10</sup> For different attitudes towards validity among social scientists see, for example, Schwandt (2007: 309-310)

validation is difficult does not signify that the concept of validity is irrelevant altogether.

Now, can this kind of conception of validity be applicable to other types of research? Although they are referring to psychological measurement, the conception of validity that Borsboom et al. (2004) are advocating is, to my understanding, an all-inclusive position. That means that there should be only one type of validity – no different kinds of validity or degrees of validity – just plain validity which either is or is not a quality of one's research. They recognize that epistemological issues are central to validation and consequential issues to test use but either of these facts should not affect the way validity is defined (Borsboom et al. 2004: 1069). If research with measurement is defined valid when the tests fulfil the two requirements of existence and causality, why should the case be any different in other types of research?

If the validity of studies relying on measurement procedures is determined by the validity of the tests that are used, what this kind of conception implies in the context of research that, for example, aims to understand phenomenon X by observing it or interviewing people involved in it? In research involving tests, the conclusions are based on the data that is produced by the measurement. It is thus the measurement outcomes that determine the arguments that can be formed based on the inquiry. In research that aims to understand some phenomenon, it is similarly either the observations or interviews or perhaps both that produce the data that is used as a basis for conclusions.

Deducing from the previous discussion, it is the activity, which is used to produce the basis for the conclusions, which validity we are interested in when determining the validity of research. Validity is hence a property of the means of studying the phenomenon in question. The idea behind this is that only valid means are able to produce valid results and, thus, assuring the legitimacy of the methods for the purpose that it is used is the critical determinant of validity of research. As Borsboom et al.'s (2004) conception validity is a question of whether the test measures what it purports to measure, a more general form of this could be: whether method accounts for what it purports to account for.

## 4 VALIDITY AND VALIDATION IN CONSTRUCTIVE RESEARCH

This chapter capitalises on the conception of validity presented in the previous chapter. What is suggested is that validity is a property of the means by which the results that form the basis of the research's final conclusions are produced. The aim of this chapter is to justify that this conception of validity is applicable to constructive research and to illustrate how the validation of constructive research could be conducted accordingly.

### 4.1 Validity in constructive research

As was said in chapter 2.2.2, constructive research aims at solving practical problem situations by providing technical norms to inform what one should do in order to get from a problem situation B to improved situation A. Thus the technical norm can be regarded as the ideal product of constructive research. Functionality of the construction is both an aim and the requirement for the technical norm to be true. You cannot offer a technical norm as a conclusion of inquiry if, in reality, performing X does not lead from situation B to situation A. In this sense the pragmatist notion of truth (i.e. what works is true) applies to constructive research but it must be noted that it applies particularly to the truthfulness of the technical norm. Kasanen et al. (1993: 258), however, argue that it is the validity of the construction and hence the validity of research that is determined according to the pragmatist notion of truth. But I assert that even though the construction would not work i.e. would be invalid it should not condemn the whole research as invalid. Validity is not about the success of research, it is more about conducting it properly.

Functional constructions and hence the technical norms are not the only products that constructive research may produce. As Lukka (2001) notes, a constructive research may be interesting from the academic point of view even though it would fail in the practical sense. Failure in the practical sense means that the developed construction does not work in practice the way it was intended to work and the problem situation remains unsolved. Still, as constructions usually contain positive interdependencies,

the research process and implementation may provide knowledge about them in a similar manner as basic research does (Lukka 2001).

Lukka (2001) states, that in situations where the construction fails the practical test, the researcher should contemplate on the reasons that led to the failure and that way recognize, what changes are required to the preconditions so that it would be possible to find a functional solution in future. Now, if the pragmatist notion of truth would be applied to the research as a whole, these other kinds of research conclusions would be false or invaluable. Thus constructive research as a whole is rather complying with the correspondence theory of truth: conclusions are true if they correspond to reality, whether they are in the form of technical norms or other information.

Referring to the previous chapter, if validity is the property of the means by which the results, which are used as a basis for the conclusions, is produced, then in constructive research the empirical testing represents the means. Thus validity in constructive research is a property of the testing procedure. Testing the functionality of the developed construction, whether it is conducted in the form of implementation or something else, is usually the means of providing the information needed in making the final conclusions about the inquiry. Testing determines if the construction works and justifies either the formation of a technical norm or some other conclusions. Therefore testing determines also the validity of constructive research.

In the case of the implementation, for example, the condition for its validity can be presented like this: The implementation is valid for testing the functionality of a construction if and only if a) the construction exists and b) variations in the functionality of the construction causally produce variations in the testing outcomes. Validity of constructive research depends on the validity of the testing procedure of the construction because valid results are only produced by valid procedures. It is just like thermometer cannot produce valid results about a person's height because it does not measure height at all. In a similar manner, if the testing procedure is invalid, it is unable to give real information about the functionality of the construction.

Testing the usability of the developed construction is ostensibly an integral part of constructive research approach but as Kasanen et al. (1993) note it is not always possible due to resource and time restrictions. But if testing of any kind is not conducted, then nothing can be said about the constructions functionality and the kind of conclusions that were exhibited above cannot be inferred. In this kind of “stub” constructive research the proposed construction is the basis for the conclusions (i.e. the result). As the research process does not culminate into testing the functionality, the way in which the construction was developed becomes the center of attention. Now the validity of research depends on the means by which the solution was constructed. In this case the condition for validity could be stated something like this: the process is valid for solving the problem if and only if a) the problem exists and b) variations in the problem causally produce variations in the construction outcomes.

What this new conception of validity means for the traditional validation procedure of constructive research suggested by Kasanen et al. (1993: 253) is that it is not considered as a validation procedure at all. Among other things, this issue will be dealt in the next section.

## **4.2 Validation of constructive research**

In their paper, Kasanen et al. (1993: 253) propose market-based validation as the means of validating managerial constructions. But while their conception has been that it is the validity of the construction that determines the validity of the research, according to the conception advocated in this thesis it is the validity of the means of testing the functionality of the construction that determines the validity of research. As market-based validation actually is a way of testing the functionality of the construction, it is the whole procedure – not the target of it – which validity we are interested in.

Market-based validation includes three different levels: weak, semi-strong and strong (Kasanen et al. 1993: 253). As each of them represents an individual test, I will deal with them separately. The following analysis of the different market-tests is actually what validation is about. Thus it serves also as an example of how validation of con-

structive research should be approached if the validity conception advocated in this thesis is accepted. Although the analysis i.e. validation is based on reasoning only without the real context of constructive research, it aims to demonstrate the perils residing in the use of the market-based tests and the importance of the analysis of the testing method in determining the functionality of constructions.

The weak market test rests upon the question “Has any manager responsible for the financial results of his or her business unit been willing to apply the construction in question in his or her actual decision making?” (Kasanen et al. 1993: 253). Combining this to the conditions of validity, the willingness to apply is valid for testing the functionality of the construction if and only if a) the construction exists and b) variations in the construction causally produce variations in the testing outcomes. As willingness is based more on the respondents’ feelings and hunches rather than purely on the construction itself, weak market test’s validity as a method of testing the functionality of the construction is likely to be a debatable issue in many occasions.

The questions that the researcher should be asking when committing himself to the weak market test are, for example, “Is the willingness or unwillingness to apply the construction really due to the characteristics of the construction?”, “Are the respondents really capable of making objective judgments about the constructions functionality without seeing it in action?”, “Is the willingness or unwillingness systematic among the respondents? Why/why not?” etc. Although they might be even fairly well-grounded, considering the position of the respondents, the responses are often only impressions about the construction and a real causal link between the answers and the construction’s properties is lacking. It is possible, that one single construction will bring about two different answers. The answers are likely to differ according to the characteristics of the respondents – those who are more change-oriented are willing to try new things more eagerly – instead of the characteristics of the construction itself. Thus a researcher engaging in this kind of testing procedure should be aware and alert for the dangers that it may bring considering the validity of the research.

The semi-strong market test is based on the adoption rate of the construction by companies (Kasanen et al. 1993). Also this procedure is uncertain considering the second condition of a valid testing method. It seems logical that more functional the construction, the more extensively it is used. But what the researchers need to worry about is the fact that there are so many factors that have nothing to do with the actual functionality of the construction that are able to increase the adoption rate of it. Marketing, tempting layout or even the reputation of the researcher or his organization are cut out for overpowering the causality of things. Of course, functional constructions are likely to generate success stories which further increase the adoption rate but then the functionality test should not be the adoption rate in the first place but the implementations that have generated the stories. Plain adoption rate is unlikely to reveal the whole truth and as Ketokivi (2008: 84) argues as a criticism for the market tests “using this criterion, we would probably think of, say, the Balanced Scorecard as relevant—and it is. But causality works from rigor to relevance: BSC sells and is relevant because it is rigorous. Astrology, feng shui and pornography sell, too, but scientific rigor is not the first thing that comes to mind as the explanation”. These are the things that researchers should weigh up when considering this kind of testing procedure.

Conducting the strong market test is evidently more demanding task than the ones that have been described above. After a strong market test, a researcher should be capable of answering the question “Have the business units applying the construction systematically produced better results than those which are not using it?” (Kasanen et al. 1993: 253). Thus the test requires that the construction has been implemented at least to a one, preferably more than one, business unit. Although it may be a more convincing way of proving the functionality of a construction, dangers exist also within this method. If the business units and the measures for their results are not chosen carefully, there is a probability that external factors affect the performance more than existence or absence of the construction. In order for the comparison to be a valid method of testing the functionality of a construction, the researcher must assure the comparability of the units and that the indicators of the performance are really measuring what they are supposed to measure.



What this fairly brief analysis of the market tests indicates is that researchers should never take it for granted that some method of testing the developed construction will always yield justifiable results. I am not suggesting that the market tests are inappropriate for the job but that that possibility must always be examined. A researcher cannot take it for granted that just because some functionality test has been used in another constructive research, it surely is proper for my research, too. Relating to this, Borsboom et al. (2004: 1062) express; “The final step, leading to some very dark philosophical dungeons from which escape is impossible, is to start talking about some presumed universal characteristics of this epistemological process (usually derived from a few paradigm cases like length or temperature measurement) that, if present, would allow one to somehow be rationally justified in concluding that the ontological claims are true”. There is no universal process of validating constructive research. There are only different ways of testing the functionality of the construct and the validity of these ways has to be analyzed in each particular case at a time in a similar but perhaps in more in-depth manner than what has been done in this section.

Another thing that can be inferred is that if a researcher is either unable to find a valid method for testing the functionality of the construction, or he is not able to test the construction at all due to time and resource restrictions, for example, then he should accept the situation and act accordingly. Invalid testing procedure will only lead to invalid research and, thus, one should not conduct, for example, the weakest form of the market test just because “it is customary in this type of research”. It is better to accept that the construction will not be tested at all, in which case the validity of the research depends on the methods used to construct the construction as was said in the beginning of this chapter. Then the result of the research is the construction and hence the target of the analysis i.e. the source of validity is the data collection and reasoning of the researcher i.e. the construction procedure. Whether this is a good way of conducting constructive research is a debatable issue as one of its key characteristics – testing the functionality – is missing. But what must be understood is that valid research need not be good research but good research cannot be invalid research. Thus whatever the form of constructive research, the means by which the results are produced must be valid.

## 5 DISCUSSION

### 5.1 Contribution of the study

This thesis argues that the current notion of validity of constructive research, which denotes that the validity of research depends on the functionality of the construction (Kasanen et al. 1993; Malmi & Granlund 2009), does not address what the validity of research essentially signifies. Therefore it is suggested that validity of research depends on the validity of the means by which the research results – from which the conclusions are inferred – are produced. Applying this notion to the constructive research means that validity of constructive research is determined by the validity of the means of testing the functionality of the developed construction. In the case that testing of the construction is not realizable due to whichever reason, then the validity of this kind of abbreviated constructive research is a question of the validity of the means by which the construction was constructed.

This renewed conception of validity has some eminent implications for the validation of constructive research. In the introductory part it was described how researchers engaging in constructive research may end up in trouble when validating their studies. It was stated that due to the difficulty of specifying the effects of implementing abstract managerial constructions into complex company environments, researchers are often unable to distinguish valid research from invalid research in a credible manner. However, this is not a problem of validation anymore as validity is not determined by examining the construction itself or the effect of it in practice but the means by which its functionality is tested.

It is important to take notice that this statement does not mean that the functionality of a construction is any less appreciated goal in constructive research than before. If the researcher is not geared towards it, then maybe some other approach to research would be preferable for him. But against often seeing those as identical, Borsboom et al. (2004: 1070) emphasise with regard to measurement that the terms valid and optimal should be decoupled. Research can be valid even if it is not good. Validity cannot be the concept where all the issues related to goodness and quality of research are

integrated. And neither can it be a concept that means everything and, at the same time, nothing at all. Currently it seems to be that way as every type of research has its own degrees and types of validity which in another type research are regarded irrelevant. For other issues that constitute good constructive research must be other concepts and means of assessing them. The subtlety is that different research types can have their own criterion for quality without tearing the concept of validity apart. One concept for one meaning is a good guiding principle. Communication in general would be difficult if, for example, one man's "chair" would be another man's "table" or "bed" – the same thing applies to scientific concepts as well.

Another important thing to be noted is that even though the proposed conception takes the validity as the issue of the methods it is not by any means suggesting that the methods would have validity intrinsically. What is suggested here must be separated from the doctrines that embody different levels of methodological optimism, which is a conception maintaining that finding the right method or applying correct methodological rules will guarantee the success of research and the constant growth of scientific knowledge (Niiniluoto 1999:79). It is quite the contrary: every method of testing the functionality of the construction must be evaluated within that context in which it is used. This point was illustrated in chapter 4.2 where the testing methods for constructive research suggested by Kasanen et al. (1993) were analysed. The analysis revealed that there are many questionable elements related to these methods and on no account should the researchers take these or any other tests as given assuming that they will work in every constructive research. Validity of some particular method depends on the context it is used.

Even though testing the functionality of the constructions is not considered as a validation procedure anymore, it does not diminish its value as a part of constructive research approach. Implementation or other testing is still a key characteristic of constructive research and functionality is the thing that practicing managers are interested in. But the fact that validation does not depend on the ability to specify the effects of the implementation and that even researches with failed constructions can be considered valid by the same standards as the "successful" ones, has the potential to build the consistency and credibility of the approach. If the validity of research can

be established systematically in a scientific manner it may shed the consulting reputation of constructive research (Kasanen et al. 1993: 251; Malmi 2010: 122) little by little and ease the publishing of the studies.

How constructive research should be validated then? It is not legitimate to exercise any kind of methodological optimism here either so I cannot give a normative answer to this question. But validation essentially begins from understanding that every testing method must be evaluated before they are employed. Already recognition of the fact that one cannot just copy something that has worked out in another research may be a step towards validity. However, the researcher is free to use any kind of methods of validation that he expects could bring him confidence that the testing method really reflects the functionality of the construction. Probably an analysis about the risk that the test could be indicative of something else than functionality (e.g. good marketing like in the case of the semi-strong market test) comes usually in question. And this is an important thing to note: validation must be done before the test is performed. If validation is not done until the research report is being written, there is nothing that can change an invalid research into valid unless the testing is conducted again with a valid method.

Considering the discussions about the lack of relevance of research in the fields of operations management and management accounting (Holmström et al. 2009; Malmi & Granlund 2009; Mitchell 2002: 278-279) what is proposed here is good news. The proposed conception of validity clarifies the understanding about the way in which the studies can be validated. Validation has a role to play when the scientificity of research is being judged. If the question of validity of research can be addressed in a credible manner within a study, it ought to increase its chances of getting published. Enhancing the methodological base of constructive research is an important step in increasing its credibility as a research approach and widening its use in research practice. I hope this thesis has contributed to this progress.

## 5.2 Evaluation of the study

The old saying goes that one should practice what one preaches. In the spirit of this, it is perhaps reasonable to discuss about the validity issues related to this study. In pursuance of this exercise it has also come to be shown how easy it is to get in the wrong track when considering the validity of research. Pondering the validity of this study I almost came to suggest that validity means a watertight chain of reasoning which is laid out as open as possible and that validity then depends on the readers own judgement. But while this can stand for the *credibility* of the research, it would not have been in line with Borsboom et al.'s (2004) or my own propositions about validity. Like Borsboom et al. (2004: 1063) put forth, validity is not a judgement at all but the property being judged.

The conception of validity suggested by Borsboom et al. (2004) and applied in this thesis really is so simple that it has the ability to get a researcher confused. According to the conception, validity is a property of the means by which the research results were produced. The main conclusions of this thesis are the suggestions about how validity should be comprehended in constructive research and how constructive research should be validated accordingly. The result, on the basis of which I have come to these conclusions, is the suggested definition for validity in constructive research (i.e. validity is the property of the tests by which the functionality of the construction is determined).

The method, for one, has been abductive reasoning. I started from mapping through the various definition of validity in the literature and came to a conclusion that there is no proper conception of validity that could be applied to constructive research straightforwardly. Then I decided to explore the conception of Borsboom et al. (2004) which stated that a psychological test is valid if the test measures what it purports to measure. Through reasoning I induced that their conception can be put into a more general form: validity is a question of the means by which the results are produced. Finally, deducting from the general form of the conception and combining it to the knowledge gained about the constructive research approach it was possible to

establish an applicable conception for constructive research. The process of reasoning has thus proceeded from general to particular and again to general and particular.

Now the question of validation prevails – Is the method of abductive reasoning which is founded on written scientific material valid for examining the problem of validity and validation? But let me contemplate the conditions for the validity of this research separately; the abductive reasoning is valid for explicating the concept of validity if and only if a) the concept of validity exists and b) variations in the concept of validity causally produce variations in the explication outcomes. The validity of the first condition can be justified, for example, by the vast amount of literature that has been written about the issue. Validity is a concept which meaning is socially constructed and even though it does not have a physical counterpart, I reckon that there would be quite few people to argue that it does not exist at all.

The second condition requires that if the studied conception differs, then the explication made from it must differ too. I am certain, that if the material that would have been different and I would not have ever arrived to the article by Borsboom et al. (2004) or something similar, the outcome of this thesis could have been totally different. Moreover, this thesis should stand as a written evidence of the causality of the reasoning process – although there is always a possibility that I have failed in this task and the reader is thus unable to find the logic and causality. But I am sure it is there and as both of the conditions seem to be fulfilled, I proclaim this research to be valid. However, here the reader is free to practice her judgement over my justifications for validity.

Reliability is a concept that is hard to see as appropriate in all kinds of research as validity. Originally reliability has represented the measurement error related to quantitative measurement instruments (Niiniluoto 1999: 187). The idea in reliability is that reliability of research can be improved by repeating the same test as many times as possible because results are always approximations and dozens measurements enable better approximations than a few. In general reliability has been defined, for example, as “the extent to which a measurement procedure yields the same answer however and whenever it is carried out” (Kirk & Miller 1986: 19) and as a confi-

dence in that "the way data were gathered could be repeated without the methods themselves producing different results" (Payne & Payne 2004: 197).

If the validity, in my conception, relates to the means by which the results were produced, reliability should probably relate to the same thing. Thus the "measurement procedure" in this research would be reasoning. Whether the same results would have been reached by another person with the same mission and the same materials is doubtful. To be straight, I am not even sure that if I would begin this process all over again from scratch myself, I would reach the same results that I am presenting here as this kind of heuristic process usually proceeds more by accident than design. But as everything that I have written here is based on extant literature or to my reasoning which I have tried to present as clearly as possible, the reader is free to check whether he agrees with the logic I have exhibited.

It can be considered as a limitation that I have had the ability to familiarize myself only to a fraction of the definitions of validity that there exists. However, I fully stand by the validity conception that I have proposed and I suspect that going through even more definitions would have driven me to the same conclusion: the concept has evolved into something that it fundamentally does not represent and it is necessary to go back to the basics to figure out what it essentially means. In addition, including analysis of real constrictive studies, either already published ones or work in process, would have definitely increased the value of this thesis. Real-life examples could have provided more insights into practicing researches about the hands-on application of the validity conception and validation presented in this thesis.

### **5.3 Recommendations for further research**

It was stated previously in this chapter that everything does not need to be connected to validity even if its evaluation would be considered important in relation to practical value or scientificity of research. There are multiple different factors apart from validity that have an important role in contributing to the quality of research. Lukka (2000: 121-122) have listed several factors on the basis of which the constructive research could be evaluated. For example, one of those factors that Lukka (2000:

121) mentions is that the study must be clearly and economically reported. What this and other criteria mean in practice is a thing that methodological research should address in future. The validity conception advocated here includes an idea that it is a question that can be answered with yes or no. However, many other issues related to quality may not be that straightforward and hence be even more difficult to evaluate for an individual researcher. Therefore some kind of guidance could be needed.

Another issue worth studying that rises as a consequence of this thesis is that whether the definition “validity is a property of the means by which the research results were produced” is applicable to all kinds of research. And if it is not, what are the reasons for it. I suspect, unfortunately, that debates on the definition validity and validation will not be settled anywhere in the near future. However, the right direction in these debates, in my mind, would be to pursue for uniformity of these concepts after decades of scattering them.

Finally, I would like to raise the issue of which Lindblom (1987) seems to be particularly concerned about: there is a danger that a hunt for a similar certainty in validity as in natural sciences may end up researchers losing sight of what really is important in research. He says: “The ideal of scientific validation becomes a productive ideal for the social sciences only when it is qualified – only when we pursue limited degrees of it in limited circumstances” (Lindblom 1987: 513). I perceive this as a reminder of not going too far in the efforts to validate research; putting some thought to validity should be on every researcher’s agenda but leaving something unpublished or unstudied because of the difficulty of validation should not. Thus it is desirable that the future discussions in the philosophy of science will continue to contemplate on the importance of validity and especially the importance that it should have in a one single researcher’s work.



## 6 CONCLUSIONS

This thesis has addressed the problem of validation of constructive research. Extant literature on constructive research approach has not resolved the problem of validation in a comprehensive manner. This thesis has built the scientific body of knowledge about the constructive research approach especially with regard to its philosophical premises that have had less attention in the extant literature. The conventional conceptions about the validity of research in general and validity of constructive research in particular have been questioned and alternative conception has been suggested. On the basis of the suggested conception of validity guidelines for validating constructive research have been proposed.

As a result of this research, it is proposed that validity of research depends on the validity of the means by which the research results – from which the conclusions are inferred – are produced. Applying this notion to the constructive research means that validity of constructive research is determined by the validity of the means of testing the functionality of the developed construction. If the construction cannot be tested for one reason or another, then the validity of the research depends on the validity of the process by which the construction was constructed. What this means in relation to the validation of constructive research is that every researcher must analyse the testing methods before engaging in them. Every testing procedure must be evaluated in the context it is used and, thus, there cannot be a presumption that some testing procedure is valid in every constructive research.

The study has addressed the question of validity which has been a widely debated issue within the scientific realm. By clarifying the way in which it should be comprehended and offering some guidelines on how the task of validation should be tackled in constructive research is hoped to build the methodological base of constructive research approach further. Enhancing the credibility of the approach will hopefully increase its use among the operations management and management accounting researchers. These fields are applied by their nature and hence their research should aim to build theories that are sound in a scientific sense and also useful for practitioners. At its best, this is exactly what constructive research is capable of.

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