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## **Behavioral accounting research – accounting research in the behavioral paradigm? True or false?**

***Abstract.** This paper deals with the problem of the research paradigm in behavioral accounting. It focuses on the question of whether the behavior paradigm is applied in the science called “behavioral accounting.” Considerations presented in the paper are of theoretical character. The author focuses on a literature study, based on historical and contemporary papers. The considerations are interdisciplinary, combining fields such as philosophy (with special emphasis on the philosophy of science), psychology, behaviorism, accounting (with special emphasis on behavioral accounting) and finance.*

***Keywords:** paradigm, behaviorism, behavioral accounting*

### **Introduction**

Development of behavioral accounting is one of the most significant trends in contemporary accounting research and theory. As its name says, it focuses more on the behavior on accountants and users of the accounting information, than on the other accounting aspects, such as legal determinants or calculations.

The behavioral research in accounting can be often mistaken with behavioral paradigm called behaviorism which functions in science and humanities and which is rooted in philosophy (especially philosophy of science) and psychology.

The research problem of this paper focuses on the relations between behavioral and behavioristic paradigm in accounting. The aim of the considerations is to solve main question which is:

- What is the relation between behavioral accounting and behavioristic paradigm in accounting?

The supportive questions are:

- What is the general nature of paradigms in science?
- What is understood by “behavioral accounting” term?
- What are the main assumptions of behavioristic paradigm?
- Can behavioristic paradigm be applied to the behavioral accounting research?

The main thesis states that behavioral accounting research cannot be defined nor understood as accounting research made in behavioristic paradigm. The research covers the critical analysis of publications on accounting (particularly: behavioral research in accounting), behaviorism, philosophy (especially philosophy of science and behavioristic philosophy), psychology (including its history and behavioristic psychology).

The specific goal of the paper is to explore, present and explain the differences between the scientific behaviorism and scientific approach used in behavioral accounting research. The more general goal is to give attention to the necessity of precision and clearness in the scientific discourse.

## **1. Essence of scientific paradigms and behaviorism as a scientific paradigm**

The discourse about the paradigms should be doubtlessly started by explanation of the paradigms themselves. K. Khun observes that, “historical investigation of a given specialty at a given time discloses a set of recurrent and quasi-standard illustrations of various theories in their conceptual, observational, and instrumental applications. These are the community’s paradigms, revealed in its textbooks, lectures, and laboratory exercises. [...] Anyone who has attempted to describe or analyze the evolution of a particular scientific tradition will necessarily have sought accepted principles and rules of this sort” [Kuhn 1970: 43]. “Normal science can be determined in part by the direct inspection of paradigms, a process that is often aided by but does not depend upon the formulation of rules and assumptions. Indeed, the existence of a paradigm need not even imply that any full set of rules exists [Kuhn 1970: 44]. J. Jalladeau states that the paradigm is “formed of a body of theories, techniques, and metaphysical sets accepted by

Table 1. Phases of Behavioral Revolution

Phase of behaviorism		Person	Essence
First phase of “behavioral revolution”	Classical “stimuli-responses” behaviorism	John B. Watson (1878-1958)	Introduced term “behaviorism”
Second phase of “behavioral revolution”	Meditational “stimuli-organismic entity-responses” behaviorism	Edward C. Tolman (1886-1959) Clark T. Hull (1884-1952) Kenneth W. Spence (1907-1967)	Unobserved “organismic” terms were inserted between “stimuli” and “responses” of classical behaviorism

S o u r c e: author’s own elaboration based on Moore 2010a: 143.

a group of scientists. The dominant paradigm is the conceptual frame governing every discourse [...] The paradigm defines the type of problems to resolve and vouchsafes the existence and nature of a solution recognized by group” [Jalladeau 1978: 589].

Behaviorism is one of the most significant paradigms in history of sciences and in contemporary science as well. Its formal beginnings can be associated with the works of B.J. Watson who used the term “behaviorism” for the first time. His works started the “behavioral revolution” in science. The stages of the revolution are presented in Table 1.

In his work B.J. Watson stresses that from the behaviorists point of view psychology “is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior. [...] The behaviorist, in his efforts to get a unitary scheme of animal response, recognizes no dividing line between man and brute. The behavior of man, with all of its refinement and complexity, forms only a part of the behaviorist’s total scheme of investigation” [Watson 1913: 158, after Ahrzem 2004: 6].

J. Moore explains, behaviorism “has never been a unitary psychological perspective and proponents differ significantly in terms of methodology and theoretical outlook” [Moore 2010a: 137-150; Moore 2010b: 699-714, after Abramson 2013: 57]. Nevertheless, all types of behaviorism have a lot in common. “For behavior analysts, behaviorism is the philosophy of science underlying the science of behavior. It takes behavior as a subject matter in its own right, and applies the principles and methods of other natural sciences to develop theories and explanations” [Moore 2011: 460]. J. Freiberg stresses that behaviorists “believe that knowledge does not depend upon introspection, and they completely reject discussion about internal mental states. Rather, behaviorism’s focus is on the external

observation of lawful relations between and among outwardly observable stimuli and the responses that follow. What constitutes valid knowledge is publicly observable, and as such, behaviorists believe that the concept of mental states can be discarded" [Freiberg (ed.) 1999, after Boghossian 2006: 1]. P. Grey defines behaviorism as "a school of psychological thought that holds that the proper subject of study is observable behavior, not the mind, and that behavior should be understood in terms of its relationship to observable events in the environment rather than in terms of hypothetical events within the individual" [Gray 2007: G-2]. According to J.F. Rychlak, different types of behaviorism have at least two things in common: "the claim to scientific accuracy and a definitive image of human nature thought to assume an exclusively naturalistic worldview" and view in which "the forces of nature are considered to exclusively govern all animals, including the behavior of higher animals, humans" [Rychlak 1981, after Slife 2012: 801].

## **2. Behavioral accounting research versus behavioristic paradigm**

S.W. Becker "pointed out a [...] set of distinctions between behavioral accounting research and other forms of accounting research. Behavioral accounting research applies the theories and methodologies from the behavioral sciences to examine the interface between accounting information and processes and human (including organizational) behavior" [Becker 1967: 225-228, after Birnberg, Shields 1989: 24]. T.R. Hofsted, J.C. Kinard defined behavioral accounting research as "the study of the behavior of accountants or the behavior of non-accountants or the behavior of non-accountants as they are influenced by accounting functions and reports" [Hofsted, Kinard 1970: 43, after Lord 1989: 124]. Basing on given definitions and considerations behavioral accounting research can be described shortly as the "research on accounting – related behavior."

J.C. Birnberg, J.F. Shields identified five schools within behavioral accounting research, which are:

- managerial control,
- accounting information processing,
- accounting information system design,
- auditing process research,
- organizational sociology [Birnberg, Shields 1989: 23-74].

Table 2 presents the essence and main research fields of those schools.

Table 2. Behavioral accounting research schools

Behavioral Accounting Research School	Essence	Research fields
Managerial control	Discusses in broad sense planning and control.	effects of participation on budget levels, participation, management styles, budgeting, contingency, relationship between leadership styles and use of accounting reports, effects of individual differences on individual responses to the control system, linkage between the managerial control system and the strategic planning, role of accounting in resolving the problems of managers caused by environmental uncertainty, influence of reporting rules on behavior
Accounting information processing	Constitutes a natural extension of dominant themes in financial accounting research.	the role of accounting in disclosure of financial information to users, impact of alternative accounting treatments on the decision making of users, human information processing, reliance on inexperienced subjects, financial user behavior, effects varying the inputs, entire decision making process
Accounting information system design	Explores behavioral issues in the overall design of the firm's information system, concern with ability to generalize the findings to all aspects of the firm information systems activities.	needs of accounting information system design of consideration of the cognitive styles of users, relating system and decision style of user, role of the structure and design of accounting reports in the user's ability to extract the appropriate information, the role the accounting information system plays in development of the organization's structure and adaptivity, effect of the information load on the quality of the decisions
Auditing process research	Includes behavioral accounting research on internal and external audits.	experience as basis for auditor's expert judgment, decision making of auditors, identifying auditor's expertise and improving it
Organizational sociology	Focuses on practice of accounting in organizations.	influence of the environment on an organization accounting system, forces that cause accounting information system to change over time, role of the accounting in the political realm of an organization, usage of accounting systems by individuals to make sense of their organizational experience, alternative functions for accounting, individual function of accounting, socio-political function of accounting, organizational function of accounting

Source: author's own elaboration based on Birnberg, Shields 1989: 23-74.

Table 3. Behavioral accounting research literature types

Behavioral Accounting Research Literature	Content	Examples
Original empirical studies in accounting	Raw materials of research programs	Stedry A., <i>Budget Control and Cost Behavior</i> Stedry A., <i>Budgeting and Employee Behavior: A Reply</i> Churchill N.C., <i>The Behavioral Effects of Audits. An Experimental Study</i>
Review of the literature of underlying disciplines	Reflective attempts to generalize concepts from non-accounting behavioral sciences	Becker S., Green D., <i>Budgeting and Employee Behavior</i> Becker S., Green D., <i>Budgeting and Employee Behavior: A Rejoinder to a Reply</i> Becker S.W., <i>Discussion on the Effect of Frequency of Feedback and Attitude and Performance</i> Caplan E.H., <i>Behavioral Assumptions of Management Accounting</i>
Review of behavioral accounting articles	Articles about articles attempting to integrate and relate the findings of the existing studies	Birnberg J., Nath R., <i>Implications of Behavioral Science for Management Accounting</i>
Theoretical works	Attempts to establish a theoretical framework for behavior related to accounting	Ijiri Y., Jaedicke R.K., Knight K.E., <i>The Effects of Accounting Alternatives on Management Decisions</i> Burns W.J., <i>Accounting Information and Decision Making: Some Behavioral Hypotheses</i>
Methodological articles	Articles attempted to educate or exhort concerning "do's" and "don't's" of particular methods	Birnberg J., Nath R., <i>Laboratory Experimentation in Accounting</i> Jensen R.E., <i>An Experimental Design for Study of Effects of Accounting Variations in Decision Making</i>

Source: author's own elaboration based on: Stedry 1960; Becker, Green 1962: 392-402; Churchill 1962; Stedry 1964; Caplan 1966: 496-509; Jensen 1966: 224-238; Becker 1967: 225-228; ; Birnberg, Nath 1967: 468-479; Birnberg, Nath 1968: 38-46; Burns 1968: 469-481; Hofsted, Kinard 1970: 38-54; Ijiri et al. 1966: 186-199.

It should be stressed that most of the researches made according to behavioral accounting schools, presented in table, is not conducted in accordance with behavioristic paradigm. The most important reasons are:

- Mental processing of accounting information is unnoticeable by outside observer.
- Mental processing of data and decision making are connected with internal mental states.

- Sociology of organizations is connected with mental perceptions of roles, positions and politics.
- Auditor's behavior can depend on cognitive style and biases.
- Information system design depends on cognitive styles of users.

All those facts are making usage of behavioristic paradigm impossible.

T.R. Hofsted and J.C. Kinard classified behavioral accounting literature and enumerated five types of publications:

- original empirical studies in accounting,
- review of the literature of underlying disciplines,
- review of behavioral accounting articles,
- theoretical works,
- methodological articles [Hofsted, Kinard 1970: 38-54].

The classification including the content of papers and examples of papers in presented in Table 3.

Such classification shows that in some class of behavioral accounting literature application of behavioristic view is possible. Behaviorism can be used in methodological papers if the behavioristic methods (like: laboratory experimentation and outside observation) are proposed. It is also possible in theoretical articles if they base on behavioristic theories. Moreover, behavioral accounting articles which include the review of literature, can be called "behavioristic", if the literature, which is analyzed, focuses on the publications of behaviorists.

## **Conclusion**

The conclusion of the considerations which were presented in the paper is: behavioral accounting research is not equal to the accounting research in behavioristic paradigm. Behavioral accounting research cannot be defined nor understood as accounting research made in behavioristic paradigm. Nevertheless, behavioristic paradigm was applied to some of the researches in behavioral accounting. Those researches were done according to stimuli-responses model. The behavioristic paradigm can be therefore applied in behavioral accounting research but terms "behavioral accounting research" and "behavioristic research in accounting" cannot be treated as equal.

There are several directions of potential future studies. Most important of them should focus on fields such as:

- role and application of behavioristic paradigm in social and economic sciences, its evolution and its potential,
- role and future of behavioral accounting.

In particular, author intends to explore the following matters:

- relation between behavioral economics, behavioral finance and behavioral accounting,
- analysis of methods used in behavioral accounting research,
- analysis of behavioristic methods usage in accounting.

Recapitulating, it should be emphasized that behavioral accounting still has a great research potential but nevertheless it definitely needs clear determination of its terminology and limits as well. This clarification will not only make behavioral accounting research more reliable but also more popular between accounting practitioners and theorists.

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### **Badania z zakresu rachunkowości behawioralnej – badania nad rachunkowością według paradygmatu behawiorystycznego? Prawda czy fałsz?**

**Streszczenie.** Artykuł dotyczy problemu paradygmatu badawczego w rachunkowości behawioralnej. Koncentruje się na kwestii, czy paradygmat behawiorystyczny jest stosowany w nauce zwanej „rachunkowością behawioralną”. Rozważania zawarte w artykule mają charakter teoretyczny. Autorka koncentruje się na studiach literaturowych, w oparciu o artykuły i książki historyczne oraz współczesne. Rozważania mają charakter interdyscyplinarny i łączą dziedziny takie jak filozofia (z akcentem na filozofię nauki), psychologia, behawioryzm, rachunkowość (ze szczególnym akcentem na rachunkowość behawioralną) i finanse.

**Słowa kluczowe:** paradygmat, behawioryzm, rachunkowość behawioralna