

Research Designs and Methods in Self-assessment Studies: A Content Analysis

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ABSTRACT

This paper focuses on self-assessment studies in the higher education field. In the assessment for learning perspective, self-assessment is related to reflection, metacognition, and self-regulation: all these aspects are considered as fundamental prerequisites for students' future professional development. Despite the recognition of self-assessment educational benefits and implications, research so far lags behind the rise in the rates of aligning literature review, research design, and methodology. The study attempts to address this gap in the literature. Based on a critical review of institutional changes in the European higher education context, the paper reflects on main issues and problems faced by educational research on self-assessment. It then tries to identify future research pathways on this topic.

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1. INTRODUCTION

Over the time, higher education systems have been exposed to deep and radical transformations: the drastic internationalization process, the widening of educational aims, the technological changes, the students' requests of active involvement in university life and organization, the great pressure exerted by the economy, and the attempts to balance accountability and teaching-learning quality are only some aspects of the composite scenario outlined after the implementation of the Bologna Process (1999). Many transformations have had a strong impact on the higher education research field that it seems still relatively disorganized and little understood [1].

Many are the problems that higher education systems have had to deal with: first of all the pervasive attention to the teaching-learning quality considered both on an institutional and individual level. This concept brings together the most varied aspects such as curricula design, attention to learning context, students' services support, and the recognition of a different kind of assessment of students' learning outcomes. Nowadays, higher education systems are being called to reconsider the aims of assessment so that students may develop skills and competencies for their future personal and professional life [2]. Pursuing such aims involves the active participation of students in the assessment process [3].

The innovation of the Dublin Descriptors has led to a progressive revision of traditional testing modalities. Feedback and assessment have been recognized as very important elements not only to verify achievement levels but also to further and support students' learning.

The need of a more transparent assessment process aligned with learning outcomes if, on the one hand, has requested a rigorous and solid process, on the other one, has highlighted the opportunity of an assessment designed to:

Support students' learning; further students' self-regulation; and increase the awareness that assessment influences learning.

The dissemination of outcome-based education highlights how important is to review educational policies, higher education systems organization, and instructional design. In this perspective, the emphasis on learning outcomes has led to a shift «from educational inputs to outputs in form of direct or indirect evidence of student achievement as a measure of quality university education» [4]. In the European area, the widespread diffusion of the Dublin Descriptors has led to an assessment process that is more rigorous and aligned with learning outcomes [5]. Hence, the need to define a different assessment model for the teaching-learning process. This raises a variety of questions: How much does assessment improve students learning? Do teachers provide useful, appropriate, and timely feedback? Do they allow students to recognize and understand elements that can lead to an improvement in their performance?

Starting from this framework and in line with current assessment trends characterized by great attention on students' expectations and their learning needs, the present paper will focus on self-assessment in higher education [6],[7]. More specifically, this paper tries to reflect on main issues and problems faced by educational research on self-assessment. It reports a content analysis on research design and methods used in studies published in 12 higher education research journals over a 10-year period (2004-2014). The purpose of reviewing literature is to understand what is most relevant (both for teaching practice and educational research). Therefore, this study aims to enhance knowledge on self-assessment in the higher education context. In the following, I lay out the theoretical background for self-assessment outlining recent research paths in higher education. Then, I describe the study, the methodology of the analysis, and I present results. Finally, in the last section, I discuss the implications and the fundamental questions affecting research functions in self-assessment.

2. SELF-ASSESSMENT: WHAT ARE WE TALKING ABOUT?

As part of the Bologna Process, higher education institutions across Europe are currently involved in a major process of reforming and restructuring, which stresses the role of competencies and outcomes in curriculum design. One of the most important aims of higher education is to foster the development of professionals who can critically reflect on their professional practice. The labour market requires, nowadays, people who are able to analyse information, improve their problem-solving competencies, communicate, and reflect on their learning process. In reply to these new social needs, higher education systems have progressively changed their educational goals, which now no longer focus on making students knowledgeable within their domains of study, but on equipping them with transferable skills for successful functioning in their professional life. The competency-based approach in the higher education context has demonstrated how traditional testing modalities are not effective and suitable for assessment of complex objects such as lifelong learning, reflexivity, and problem-solving. Self-assessment has been recognised as *a sine qua non* condition for the development of effective learning and as a students' key-competence to face up to university career and future professions [8]. Self-assessment contributes to increasing self-regulation of learning because it provides students with opportunities to practice regulating aspects of their own learning and to reflect on that practice and on learning progression.

Alternative assessment has suddenly garnered great interest due to the link between lifelong learning and the development of self-regulated and responsible learners. The interest for self-assessment in higher education is related also to educational research evidence that has demonstrated the influence self-assessment has not only on learning outcomes but also on students' learning approaches and strategies [9]. In this perspective, problems and criticalities of traditional testing modalities started to surface. Traditional modalities of testing: 1) are not always reliable; 2) can, sometimes, have a negative effect on students' learning; 3) can encourage a superficial learning with a mechanic memorization and reproduction of knowledge; 4) provoke a performative behaviour and stress in students [10].

The most recent studies on assessment emphasize students' active involvement in the teaching-learning process. Responsibility for learning, metacognitive skills, dialogical teaching, and collaborative learning contexts have become very important elements in the higher education landscape.

What are the key aspects of self-assessment? It is a kind of assessment characterized by two aspects: 1) the decision-making on performance of learning standards; 2) the elaboration of judgments on the quality of a learning performance using standards [11].

However, self-assessment can be considered also as a component of the formative assessment. In this process students reflect and assess the quality of their learning, express a judgment on assessment criteria and learning goals, identify their strength and weakness point, and modify what they are doing [12].

Over the last decades, self-assessment has received great interest as an alternative assessment strategy because it involves students more actively in their own learning: research shows that, when suitably

organized, self-assessment can lead to significant enhancements in learning and achievement. Following this perspective, it is possible to collect quantitative studies tracking three main research branches [13]: 1) efficacy of self-assessment; 2) opinions and experiences of self-assessment; 3) correlations between teachers' and students' assessment.

Several studies demonstrate that self-assessment has positive effects, especially when students are engaged in both identifying criteria that will apply to their work, and in making judgements about how their work relates to standards as Brown and Harris point out, self-assessment is about judging, evaluating and considering the qualities of one's own academic work or abilities [14]. Research is being carried out in different areas of interest, such as metacognition, self-regulation and self-learning, and classroom assessment. Recent studies on formative assessment and self-assessment have attempted to understand how these practices work by focusing on students' and teachers' conceptions about assessment. However, there is also a group of studies whose results are less optimistic about the power of self-assessment: for example, research on validity and accuracy of self-assessment [15]. Despite the massive production of studies on self-assessment, educational research appears extremely fluctuating, confused, and fragmented.

3. RESEARCH PERSPECTIVES ON SELF-ASSESSMENT

The upsurge of interest in assessment in higher education, especially after the milestone studies of Boud and Falchikov has enhanced the importance of self-assessment which is now considered as an effective way for students to achieve self-monitoring and judging their own learning progression. Self-assessment is recognized as a practice intensively used and analysed. Therefore, current studies are moving towards the revision of traditional modalities of testing, the individuation of alternative forms of assessment, the analysis of teachers' and students' conceptions about assessment, and, last but not least, the development of assessment literacy [7].

Although assessment holds an essential position in the higher education field and even though recent scientific production reflects swings in the practice and in the context in which it works, educational research still seems inchoative. The attempts to transfer ideas and concepts of the socio-constructivist approach are not always effective. Assessment, sometimes, can be not really supportive of students' learning and it appears to be irrelevant for learning. An assessment aligned with a teaching-learning process aimed at fostering students' learning outcomes becomes a crucial aspect of an assessment more sustainable [16].

The idea that assessment has a considerable potential to enhance learning has been strengthened also by the importance of self-assessment, which is considered an effective way of achieving self-monitoring and judging the learning progression.

The assessment for learning approach has led to a new emphasis on self-assessment perceived as functional to increase self-regulation of learning. As a consequence research seems to be shifted to teachers' needs to implement self-assessment in an appropriate manner. And if in the past educational research has been more focused on technique, now it seems to be more interested in purposes and uses for improving teaching-learning quality and students life chances. Self-assessment is about judging, evaluating and considering the qualities of one's own academic work and abilities [14].

Institutional and policy transformations within the higher education context have made assessment practice substantially different from what it was a few decades ago: it has become more complex and assumes different connotations and meanings, sometimes in a conflict which each other [8]. In the past two decades educational research has endorsed self-assessment as positive and important aspect of formative assessment because it leads to benefits for students: self-assessment improves motivation, engagement, and efficacy, reducing dependence on the teacher. Across time, this view has contributed to create a sort of "aura" of goodness and positivity around self-assessment: while self-assessment has considerable promise for helping students improve their learning within compulsory school setting, it is not without potential problems and limitations [14]. Self-assessment has been recognized as one of the most important learning skills that students need to become self-regulated learners. This assumption, however, requires further development of empirical research in this field to provide solid evidence to support it. Despite the wide recognition of the importance of self-assessment (especially in the compulsory education sector), in the higher education field, there is a lack of studies on self-assessment validity.

Although self-assessment, as just stated above, holds an essential position in the higher education field and even though recent scientific production reflects swings in the practice and in the context in which it works, educational research still seems inchoative. Starting from this assumption the present study aims to identify which design and methods are usually used for educational research in the self-assessment field: the purpose of reviewing literature is to understand what is most relevant for research and teaching practice.

4. THE STUDY ON RESEARCH DESIGN AND METHODS IN SELF-ASSESSMENT

Self-assessment is a many-faceted concept. The link of self-assessment with the improvement of student learning and on the productivity and efficiency within the higher education context has determined, in some ways, an over-production on this topic. Often, these studies have been aimed to analyse the relationship between self-assessment theory and teaching-learning practice, and to provide evidence on improved students' learning outcomes and better regulation skills «most of the self-assessment studies in higher education focus on students assessing their capacity to acquire content knowledge and of the accuracy of their self-predictions of performance when compared with actual achievement» [15].

Rather than comparing self-assessment with performance on achievement test or reflecting on self-assessment accuracy, this study describes recent research trends in the European area. A content analysis of self-assessment studies published in 10 higher education research focused journals over a 10-year period (2004-2014) has been performed.

The purpose of this study was to investigate what is known about the methodological practice in self-assessment research in higher education in order to provide evidence as to whether some designs are used more often than others; if there are prominent methods, and if methods used are similar or different. Starting from this framework, the following questions punctuate the content analysis: 1) What research design is used (*experimental, quasi-experimental; non-experimental*)?; 2) specifically, what kind of research design is used (*posttest-only; pretest-post test; interrupted time series; longitudinal; regression-discontinuity; cross-sectional; time series; descriptive; case study; other*)?; 3) what method is more frequent (*mixed method; qualitative method; quantitative method*)? 4) what data collection methods are used (*document analysis; focus group; interviews; survey; other*)?

The content analysis examines, by comparison, contrast, and categorization of a corpus of data, the presence of concepts in texts. It is a method used across a wide range of disciplines, that includes these central steps: a) creating a set of codes, b) systematically apply those codes to some set of textual data, c) establishing the interrater reliability of codes when more than one coder is employed, d) creating a matrix of variables from texts and codes, and e) analysing the matrix by means of some univariate, bivariate, or multivariate statistical procedure [17].

For this study, a version of Christies and Fleisher flowchart has been used. Journals were selected on the base of three main criteria [18]: the journal focused on higher education research; the journal is ranked on Scimago (only peer-reviewed journals have been considered to assure high qualities of articles); the journal has been published before 2004 (year of introduction of the Dublin Descriptors). Journals were chosen following the H index list. Ten journals were selected for the content analysis:

1. Studies in Higher Education (SHE_ISSN:0307_5079);
2. Higher Education (HE_ISSN: 0018-1560);
3. The Journal of Higher Education (JHE_ISSN: 0022-1546);
4. Research in Higher Education (RHE_ISSN: 0361-0365);
5. Assessment and Evaluation in Higher Education (AEHE_ISSN: 0260-2938);
6. Review of Higher Education (ReHE_ISSN: 0162-5748);
7. Teaching in Higher Education (THE_ISSN: 1356-2517);
8. Innovative Higher Education (IHE_ISSN: 0742-5627);
9. Higher Education Research and Development (HERD_ISSN: 0729-4360);
10. Higher Education Quarterly (HEQ_ISSN: 0951-5224).

The inclusion criteria for articles were: a focus on self-assessment, within the European area, and a description of methods and design. In this way I try to ensure the inclusion of representative articles in the self-assessment field. Articles focused solely on theory or conceptual issues have not been included.

Following Christie and Fleischer [18] design and method variables were coded according to a binary categorization: from a general level to a specific level. In the first case, general categorization for design is experimental, quasi-experimental or non-experimental; while general categorization for method is qualitative, quantitative or mixed method. The specific categorization for design includes particular designs used such as posttest-only, pretest-posttest, etc. Instead, particular methods include survey, interviews, focus group, etc. To guarantee interrater reliability a second researcher coded all the articles. The interrater agreements were calculated for research designs and methods categories. Percentage agreements were acceptable (rating from 74% to 80 %).

5. RESULTS AND ANALYSIS

First I present results of general and specific categorizations providing a descriptive analysis. Then I comment results from cross-tabulations of methods variables with other variables considered in this study. The coding process starts according studies to experimental, quasi-experimental, or non-experimental design

category (Table 1). Following Christie and Fleicher, I consider a design experimental «if units were randomly assigned to conditions; quasi-experimental, if there were within-group or between-group comparisons without random assignment; and non-experimental, if it was neither experimental nor quasi-experimental» [18].

Table 1. Type of Design Used in Self-assessment Studies in European Area

Journal Title	Research Design			ROW TOTAL
	Experimental	Quasi-experimental	Non-experimental	
Studies in Higher Education	0	0	0	0
Higher Education	0	0	0	0
Journal of Higher Education	0	0	0	0
Research in Higher Education.	0	0	0	0
Assessment and Evaluation in Higher Education	1	0	7	8
Review of Higher Education	0	0	0	0
Teaching in Higher Education	0	0	3	3
Innovative Higher Education	0	0	0	0
Higher Education Research and Development	0	0	0	0
Higher Education Quarterly	0	0	0	0
COLUMN TOTAL	1	0	10	11

Starting from a base of 4765 articles it is surprising how the sample was extremely reduced. No studies on self-assessment have been found in 8 journals out of 10. First of all, articles were coded in accordance with the method categories: qualitative, quantitative, and mixed methods. It is impressive how there are no articles, within the just reduced sample, which have never used mixed methods (Table 2).

A cross tabulation between categories of design and methods shows that quantitative methods are more common for non-experimental design. This raised design is the only one that includes also qualitative methods. Clearly, there is a preference for non-experimental design. The experimental design is used once with a quantitative method; the quasi-experimental has never been found in this content analysis.

Table 2. Type of Design Used in Self-assessment Studies According to Research Methods

Type of Design	Research Methods			ROW TOTAL
	Mixed Methods	Qualitative Methods	Quantitative Methods	
Experimental	n=0 (0%; 0%)*	n=0 (0%; 0%)	n=1 (14%; 100%)	1
Quasi-experimental	n=0 (0%; 0%)	n=0 (0%; 0%)	n=0 (0%; 0%)	0
Non-experimental	n=0 (0%; 0%)	n=4 (100%; 40%)	n=6 (86%; 60%)	10
COLUMN TOTAL	0	4	7	11

Note: in each cell where there are two percentages in parentheses. The percentage on left is the column percentage, and the percentage on the right is the row percentage.

In the articles where research design was indicated it has been found if a specific design was described (Table 3). Across the sample, the case-study design is the most common in non-experimental studies, followed by the “other” category that included conceptual analysis, reflection on self-assessment theories or strategies.

Table 3. Type of Design Used in Self-assessment Studies According to Specific Design Used

Specific Design	Type of Design			ROW TOTAL
	Experimental	Quasi-experimental	Non-experimental	
Posttest only	n=1 (100%; 100%)	n=0 (0%; 0%)	n=0 (0%; 0%)	1
Pretest-Posttest	n=0 (0%; 0%)	n=0 (0%; 0%)	n=0 (0%; 0%)	0
Interrupted Time Series	n=0 (0%; 0%)	n=0 (0%; 0%)	n=0 (0%; 0%)	0
Longitudinal	n=0 (0%; 0%)	n=0 (0%; 0%)	n=0 (0%; 0%)	0
Regression-Discontinuity	n=0 (0%; 0%)	n=0 (0%; 0%)	n=0 (0%; 0%)	0
Cross-sectional	n=0 (0%; 0%)	n=0 (0%; 0%)	n=0 (0%; 0%)	0
Times Series	n=0 (0%; 0%)	n=0 (0%; 0%)	n=0 (0%; 0%)	0
Descriptive	n=0 (0%; 0%)	n=0 (0%; 0%)	n=0 (0%; 0%)	0
Case-study	n=0 (0%; 0%)	n=0 (0%; 0%)	n=6 (60%; 100%)	6
Other	n=0 (0%; 0%)	n=0 (0%; 0%)	n=4 (40%; 100%)	4
COLUMN TOTAL	1	0	10	11

Note: in each cell where there are two percentages in parentheses. The percentage on left is the column percentage, and the percentage on the right is the row percentage

Seven data collection methods have been considered. Across the sample, questionnaires, interviews, and focus group are the most common methods used in non-experimental designs (Table 4). In the “other” category were set together phenomenography, conceptual analysis, and auto-biographical analysis. However, evidence demonstrates how risible the use of these methods is.

Table 4. Type of Data Collection Used in Self-assessment Studies According Specific Design Research

Specific Design	Type of Design			ROW TOTAL
	Experimental	Quasi-experimental	Non-experimental	
Survey	n=0 (0%; 0%)	n=0 (0%; 0%)	n=0 (0%; 0%)	0
Questionnaire	n=1 (100%; 100%)	n=0 (0%; 0%)	n=3 (30%; 75%)	4
Interview	n=0 (0%; 0%)	n=0 (0%; 0%)	n=2 (20%; 100%)	2
Focus Groups	n=0 (0%; 0%)	n=0 (0%; 0%)	n=1 (10%; 100%)	1
Document Analysis	n=0 (0%; 0%)	n=0 (0%; 0%)	n=0 (0%; 0%)	0
Observation	n=0 (0%; 0%)	n=0 (0%; 0%)	n=0 (0%; 0%)	0
Secondary Data Analysis	n=0 (0%; 0%)	n=0 (0%; 0%)	n=0 (0%; 0%)	0
Other	n=0 (0%; 0%)	n=0 (0%; 0%)	n=4 (40%; 40%)	4
COLUMN TOTAL	1	0	10	11

Note: in each cell where there are two percentages in parentheses. The percentage on left is the column percentage, and the percentage on the right is the row percentage

6. DISCUSSION

This content analysis has been aimed to summarize existing research and to set it within larger methodological perspective. Specifically, this study tries to shed light on what kind of research designs are more frequent in higher education self-assessment research field. The picture that came out from this study is not particularly encouraging. However, these findings are useful because they inform some of the field’s current debate, reflect on research design and methods used in self-assessment, and try to feed methodologically the higher education research.

The quasi-experimental design is not reported in this sample. There is no evidence that self-assessment studies are framed and implemented following this research design. Also the experimental design is rarely used. The frequency of non-experimental design and of case study (as specific research design category) confirms how higher education research tends to be more local and realized on a micro-context. In this perspective, the emphasis on purely qualitative methods or purely quantitative methods is a limitation in the higher education research field. Research results, often, seem to lose their value in practical concerns. Most of the research on self-assessment focuses on its validity and recommendations are, generally, made both for teachers and students in order to improve higher-education quality. Research results remain at a contextual level of a singular institution. So, more attempts to proceed on in-depth international comparisons are needed.

Two central limitations emerged in this content analysis. First of all, this study has analysed scientific literature from 2004 to 2014, but findings are limited to the studies published in academic journals and focused on the European higher education area. Even this content analysis is limited to academic journals it is important to note how self-assessment studies in published articles are really few. This is, in some ways, a paradox: the introduction of the Dublin Descriptors, despite the emphasis on students’ self-regulation and autonomy as learning outcomes, has not increased empirical studies on self-assessment. If on the one hand, positive effects of self-assessment for teacher-learning quality are frequently recalled by literature, on the other hand, research designs and methods seem to be at an inchoative level.

Secondly, content analysis is a not intrusive form of data analysis and it is fallible in its validity and reliability: the results of this study can be considered as results of an exploratory study. More specific and rigorous investigations are needed in order to enhance higher education research: «reflective exercise of taking stock of past and current achievements and problems, of looking ahead to possible future research topics and areas for inquiry, and of designing research strategies for the future, might be more important for this area of research, being both blessed and endangered by somewhat unorthodox conditions and characteristics» [19].

Based on the literature review herein, it becomes clear that theoretical and methodological development of self-assessment requires a well-pondered reflection on research criteria, method, and designs in order to pursue not only a sufficient level of fairness, reliability, completeness but also to support a knowledge that should be shareable, recognizable, communicable.

Evidence gathered in this content analysis, even considering its intrinsic limitations, strongly suggests that it is necessary now a scientific reflection that does not stop at the first step of methodological practicality (how to do for). We need a scientific reflection that can broaden its epistemological, ontological,

and methodological horizons in higher education in order to highlight commonalities and differences of conceptions and principles about self-assessment.

It is important to understand how self-assessment is perceived and consequently implemented in a specific educational system: this acknowledgment is a step forward for assure teaching-learning quality. But it is important also to care of research on self-assessment developing regulative norms functional to the right choice of methodologies, values, theories, requests, and research criteria. Research efforts should focus on conceptualizing well-specified approaches and methodologies within the higher education system [20],[21]. In this way, there are more chances to enhance a coherent scholarship and to assure that good research carries significant implications for practice in higher education [22],[23].

7. CONCLUSION

The purpose of this article was to provide evidence of research design and methods used in self-assessment studies in the higher education area. The present analysis reveals large and significant gaps between the topic of self-assessment and its epistemological, ontological, and methodological aspects. The hope is that this study will help stimulate future research in order to improve accuracy and rigor and to overcome the risk of “methodological nationalism” in the higher education field.

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