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Original Paper

Student Self-Assessment in Primary and Secondary Education in Greece and Internationally

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Abstract

The present study is a review of 36 empirical studies in Primary and Secondary Education, in Greece and internationally and aims at investigating: a) the benefits of student self-assessment, b) the contribution of self-assessment to the development of students' skills to accurately self-assess. Moreover, this study presents the factors that affect student self-assessment ability. According to the main findings, self-assessment has been investigated more in Secondary Education. Furthermore, self-assessment has positive effects mainly on performance and learning in both secondary and primary students. Self-assessment ability and the factors that influence this ability have mainly investigated on Secondary Education with clearer and more positive findings, whereas there is a lack of research in Primary Education. In Greece, it was found only one study in Secondary Education that examines the issue of self-assessment ability with positive conclusions for students. Factors that contribute to the accuracy of student self-assessment in Secondary Education are the use of a video-based modeling examples, the observation of a human model engaging in self-assessment by students, the use of scripts and the training of students in self- and peer-assessment, whereas in Primary Education the social status, training and guidance in self-assessment and the entrance examinations affect self-assessment ability.

Keywords

accuracy, benefits of student self-assessment, Primary Education, Secondary Education, self-assessment, self-assessment ability

1. Introduction

Nowadays, the school should make a greater contribution to the cultivation of skills rather than focus only on knowledge so learners can make progress and improvement. In this context, self-assessment of

students is a very important goal for school (Konstantopoulou et al., 2016). In general, a wide range of assessment methods, including self-assessment are used in education (Demore, 2017). Self-assessment is a central element of recent perceptions of classroom assessment and especially of formative assessment (Brown, Andrade, & Chen, 2015).

Wride (2017) notes that self-assessment can be effective when students become familiar with the concept of self-assessment. Self-assessment has various purposes. These are the assessment of the content understanding, the presentation of the achievement of the results and the goals and the learner self-development. These three aspects of self-assessment are all interrelated and different emphasis is placed on them within the learning process at different times. There is a dynamic relationship between these three aspects. In the process of self-assessment, learners are those who decide according to needs, what is the "sprocket" to which they will emphasize.

Students in order to be able to self-assess they have to understand the assessment criteria. The level of language that is used is very often incomprehensible to young students. Therefore, it is necessary to present the criteria in a clear way. In addition, it is essential to provide feedback, especially to novice students who apply self-assessment (Sackstein, 2015). According to a review of Topping (2003), learners' ability, practice of self-assessing, feedback and progress in a lesson are factors that influence self-assessment ability, rather than chronological age. Other variables that affect self-assessment ability are nature of the learning objective, nature of the outcome or performance that is assessed, nature and clarity of the assessment criteria, nature of the assessment tools, gender and culture. Also, Ross (2006) argues that specific training for learners strengthens self-assessment ability. Andrade and Valtcheva (2009) underline several factors that are important for successful implementation of learner self-assessment, such as teaching the implementation of criteria to learners to evaluate their work, definition of criteria that learners use to assess their work, provision of feedback, help and sufficient time for learners to revise their work after the procedure of self-assessment.

Several advantages related to self-assessment have been identified in the literature. In particular, self-assessment enhances learning, including deep and lifelong learning, prepares students for their participation in a democratic society, makes students feel they have control over their assessment, develops autonomy, cognitive skills and metacognitive engagement, promotes better understanding and improves the quality of work. Moreover, self-assessment reduces stress and enhances personal and intellectual development or social skills (Leach, 2012). In addition, McMillan and Hearn (2008) and Brown and Harris (2014) confirm that self-assessment improves student performance and learning, whereas McMillan and Hearn (2008) confirm that self-assessment increases motivation. Alonso-Tapia and Panadero (2010) note that self-regulation as an outcome of a self- assessment procedure has not been investigated very much.

It is worth noting that self-assessment has been focused mainly on tertiary students (Panadero, Brown, & Strijbos, 2016), and Elder (2010) points out that there is little research on children's self-assessment concerning their learning and performance. Keane and Griffin (2016) note that there is not enough

evidence for child's self-assessment in order to create a realistic theory of it. Moreover, Wong (2014) emphasizes that self-assessment ability has been investigated more in Higher than in Primary Education.

The main purpose of this study is to investigate student self-assessment in Primary and Secondary Education the last decade (2008-2018) in order to provide useful evidence for teachers and researchers concerning a) the benefits that self-assessment process has on students, b) the contribution of student self-assessment to the development of students' skills to accurately self-assess and the factors that influence student self-assessment ability. Furthermore, the present study identifies gaps and makes proposals for further research.

The present study includes the following parts: the theoretical framework, the purpose and the research questions of the study, the method, the results, the discussion, the conclusions, the implications and the proposals for further research.

2. Theoretical Framework

Self-assessment is an assessment where learners express generally their judgment about their learning and specifically about the results of it and it is a way of enhancing their active participation in their learning (Wolffensperger & Patkin, 2013). In particular, self-assessment refers to the process where learners reflect and monitor their own work and/or its products, and it includes both the description, i.e., the characteristics of their work and the evaluation, i.e., how good their work is (Brown et al., 2015). As Topping (2003) notes, the intent of self-assessment is usually to involve students as active participants in their own learning and to promote students' reflection of their own learning style, learning process and outcomes of their effort.

The process of self-assessment is an important element of the assessment process because students receive the appropriate feedback and continue to improve (Zapitis, 2011). Students who participate in assessment learn how to use information to manage their learning, understand how they learn better, know where they are regarding the defined learning goals, plan and take the next steps to learn (Campos & O'Hern, 2007). Harris and Brown (2018) emphasize that there are two main reasons that teachers should promote self-assessment within classes. Firstly, self-assessment is an integral part of self-regulating learning, and secondly, student assessment without proper guidance and training vary considerably and may be poorly aligned with the curriculum's external standards.

Student self-assessment in education includes a wide variety of mechanisms and techniques through which students describe and evaluate the quality of learning processes and its products (Panadero et al., 2016). The process of self-assessment can be implemented in a classroom with various ways, such as portfolio, rubrics and learning journals. In addition, self-assessment can be implemented with a structured form, where students write their opinion regarding how they judge their effort, what problems they face and how to overcome these problems. Furthermore, there are self-assessment tests, which many of them are electronic (MacBeath et al., 2004, cited in Petropoulou, Kasimati, & Retalis,

2015, p. 131).

3. Aim of the Study and Research Questions

This study is a review of 36 empirical studies that are conducted over the last decade in Greek and international field and examines the topic of student self-assessment in Primary and Secondary Education in order to identify gaps and make suggestions for further research. More specifically, the present study aims at examining: a) the benefits of self-assessment for primary and secondary students and, b) the contribution of self-assessment to the development of students' skills to accurately self-assess. Besides, this study presents the factors that affect student self-assessment ability.

More analytically, the present study tries to answer the following research questions:

1st: What are the benefits of implementing student self-assessment in Secondary and Primary Education?

2nd: Does student self-assessment contribute to the development of students' skills to accurately self-assess and what are the factors that influence this ability?

4. Method

The following flow chart presents the methodology of the present study.

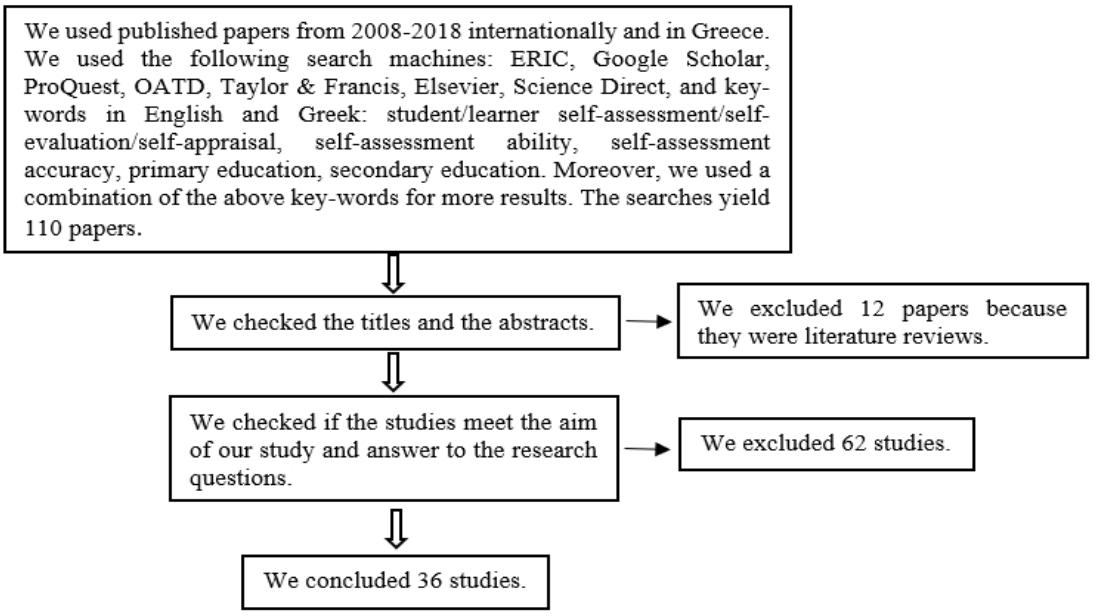

Figure 1. Flow Chart of Methodology

5. Results

Figure 2 presents the number of studies per year.

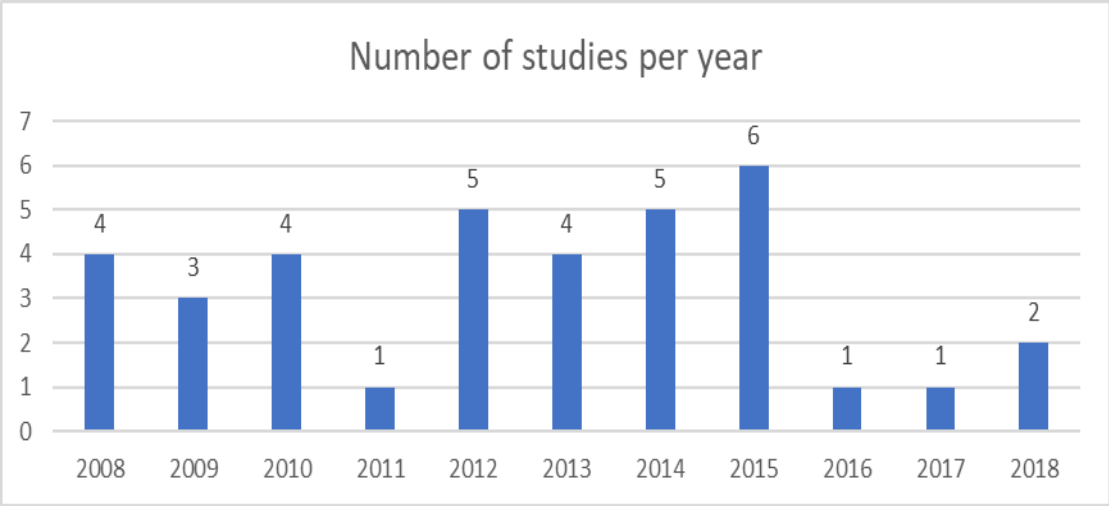

Figure 2. Number of Studies per Year

Figure 3 presents the number of studies per country.

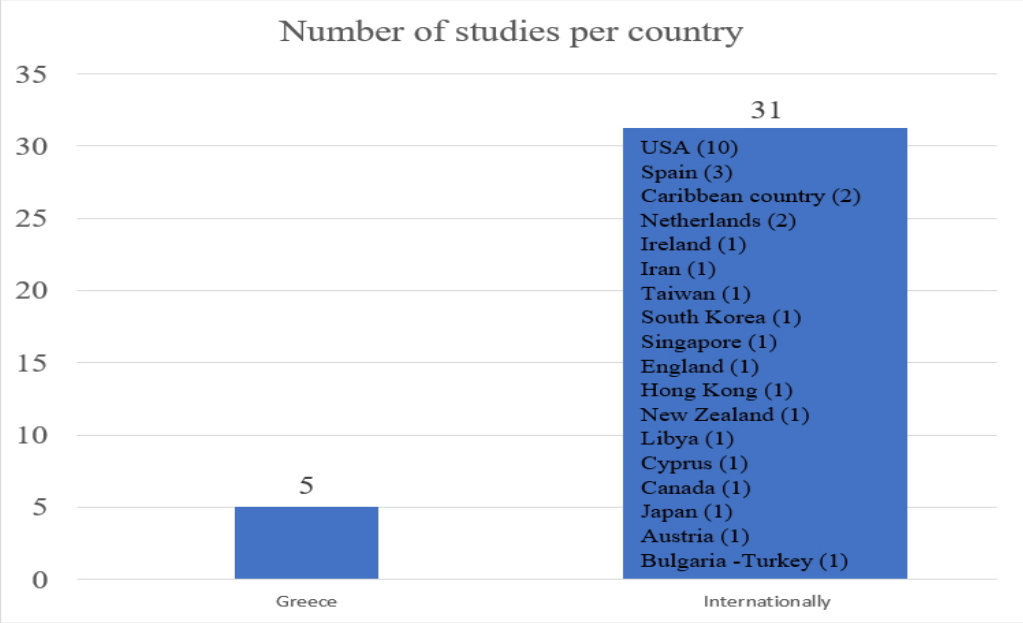

Figure 3. Number of Studies per Country

Figure 4 presents the number of studies per level of education.

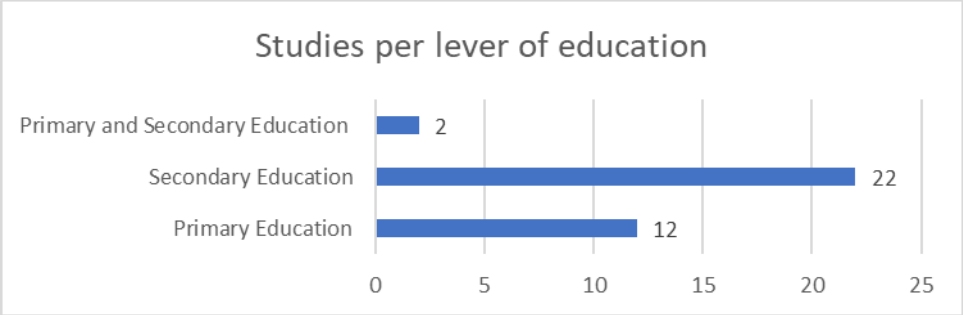

Figure 4. Studies per Level of Education

Research question 1: What are the benefits of implementing student self-assessment in Secondary and Primary Education?

Analytically, Table 1 presents the main findings of the studies regarding the benefits of student self-assessment in Secondary Education.

Table 1. Benefits of Student Self-Assessment in Secondary Education

Secondary Education			
Researchers (year) Country	Research method Sample size	Aim of the study	Main findings
1. DeMent (2008) USA	Quasi-experimental (70 students)	Investigation if the use of self-assessment affects a. the students' ability to write and b. their attitudes toward writing.	Student self-assessment can improve student's ability to write.
2. Fancourt (2008) England	Qualitative, ethnographic research (30 students)	Investigation of nature of student self-assessment about Religious education and examination of the appropriateness of various techniques.	Students made progress, and they reported that some of the techniques helped them to increase their self-esteem, others students considered that the techniques were unnecessary, while others saw techniques as a threat and others noticed that techniques were suitable for their learning.
3. McDonald (2009) Caribbean country	Mixed methods research design (515 students)	Investigation of academic performance of male students in external exams in all courses after formal training in	Male students who received self-assessment training showed higher performance than those who did not.

		self-assessment.	
4. Alonso-Tapia & Panadero (2010) Spain	Experimental research (80 students)	Analysis of the impact of scripts as self-assessment tools on learning and self-regulation in Geography when used in the frame of different types of teaching and feedback.	The use of self-assessment scripts enhanced learning and self-regulation but the effects of teaching and feedback were not significant.
5. Andrade, Du, & Mycek (2010) USA	Experimental research (162 students)	Investigation of the relationship between students' scores in a written work and a procedure where students participated in generating criteria and self-assessing with a rubric.	Reading a model, generating criteria and using a rubric for self-assessment can help students produce more effective written work.
6. Panadero, Tapia, & Huertas (2012) Spain	Experimental research (120 students)	Comparison of the impact of two different self-assessment tools, rubrics and scripts on self-regulation, learning and self-efficacy in interaction with two other independent variables (type of teaching and feedback) on the subject of Geography.	Scrips enhanced self-regulation more than rubrics. The use of the two self-assessment tools improved learning, but most interactions were not significant.
7. Thrasher (2012) USA	Treatment with 25 students and interview with 5 students	Investigation how student self-assessment techniques affect self-confidence, achievement and mastery of science concepts.	Self-assessment had a significant positive effect on understanding of scientific concepts and on reinforcement of self-confidence in understanding concepts and in achieving a good score. In addition, students seemed to recognize the value of self-assessment of their

			learning and they linked their success with the ability to control their learning. Moreover, they seemed more willing and had more energy when they had to grade their own work. Furthermore, students increased their participation in classroom discussions, showed more satisfaction with their work that they completed and they worked more diligently to achieve their goals. In addition, lower-performing students felt able to understand the scientific content, and students with highest scores seemed less anxious about the final assessment.
8. Feldkamp (2013) USA	Action research (52 students)	Investigation of the effect of student self-assessment in Chemistry.	The use of student self-assessment improved the scores slightly in the final assessment.
9. Yu (2013) Hong Kong	Experimental research (533 students)	Examination how guided self-assessment can help schools and teachers produce self-directed and successful students in Mathematics. Investigation the contribution of guided self-assessment to enhancement of students' competence in Mathematics.	Guided self-assessment improved students' performance and helped them address challenges more effectively. In addition, self-assessment enabled students to develop learning strategies and behaviors. Many students also noticed what was important and what they had to learn or memorize.
10. McDonald (2013) Caribbean country	515 high school students	Description of practical processes in mentoring students through self-assessment. In particular, teachers involved students in activities that helped	Most of the students felt they were critical, analytical, introspective, independent and improved their study habits. Also, a high percentage of those with high professional expectations felt more capable of choosing career according to their personality, as a very

		them to identify standards and/or criteria that should apply to their work and evaluate the extent to which they have met the particular standards and /or criteria.	important element of career choice is the ability to make decisions regarding the construction, validation and application of criteria. Additionally, students noticed that they were able to understand how all the lessons are integrated into the learning process. Still, a fairly high percentage stated that they felt ready to plan their future and prepare themselves for the exams.
11. Dalala (2014) Libya	Mixed methods research design (60 teachers)	Examination how self-assessment of written work of EFL students' is perceived and used in secondary schools in Libya.	Students use self-assessment strategies that develop student learning competencies such as the establishment of criteria, the comparison of their work with criteria and/or standards and the provision of feedback. In addition, self-assessment can support learning, teaching and interactive classroom interaction, and it can also enhance motivation for writing and independent learning.
12. Popelka (2015) USA	Control group and treatment group (80 students)	Investigation of the impact of student training on self- and peer-assessment on achievement in Mathematics and on assessment accuracy.	Students' training had a positive effect on achievement and the ability of students to accurately self-assess.
13. Hatami (2015) Iran	Experimental research (75 students)	Investigation of the impact that collaborative learning and self-assessment have on academic achievement at high levels and self-regulation of students in Geometry.	Collaborative learning and self-assessment had a positive effect on self-regulation. Moreover, it was found a positive effect on academic performance of students with low and high cognitive skills.

14. Nikou & Economides (2016) Greece	Experimental research (66 students)	Investigation of the effects of implementation of self-assessment with paper and pencil, computer and mobile, on achievement and motivation in Physics.	Computer and mobile based self-assessment motivated students and helped them achieve higher performance.
15. Peyton (2017) USA	Qualitative research (34 students)	Investigation of students' perceptions about the process of self-assessment in the Physical Education.	Self-assessment improves future performance, increases self-efficacy, increases motivation during the course and communication between the teacher and students.

Table 2 presents the main findings of the studies regarding the benefits of student self-assessment in Primary Education.

Table 2. Benefits of Student Self-Assessment in Primary Education

Primary Education			
Researchers (year) Country	Research method Sample size	Aim of the study	Main findings
1. Andrade, Du, & Wang (2008) USA	Experimental research (116 students)	Investigation of the impact of reading a model written work, generating criteria for the written work, and self-assessing that is based on a rubric, as well as gender, time required for written work, previous rubric use, and previous achievement on the scores of students for a written work.	Students produced more effective writing.
2. Stylianou (2008) Cyprus	Experimental research	Investigation of self-assessment through	Students who used portfolio as a self-assessment tool had higher

	(34 students)	portfolio and its contribution to the development of communication skills.	performance in communication skills.
3. Goto & Lee (2010) South Korea	Experimental research (254 students)	Investigation of the effectiveness of self-assessment of students who are taught English as a foreign language.	Self-assessment effected positively students' performance and self-confidence but the effect sizes weren't very big.
4. Zapitis (2011) Canada	Action research (46 students)	Examination how training in self-assessment affects students' knowledge and understanding of their writing and their need for improvement.	Self-assessment helped students understand better the writing practices and themselves as a writer. Moreover, students realized what is needed for a good written assignment.
5. Chalkia (2012) Greece	Mixed methods research design (18 students)	Investigation of student self-assessment as an alternative assessment method of speaking skills in English language of sixth graders of an elementary school in Greece.	Self-assessment fostered students' motivation, improved their speaking skills and made them participate in the procedure of learning. In addition, self-assessment increased self-esteem and confidence in speaking, as it helped students identify strengths and weaknesses in their learning.
6. Anastasiadou (2013) Greece	Experimental research (90 students)	Investigation whether self-assessment in English course can help students gain an insight into their learning progress and development of skills and examination whether students recognize the advantages of the "process writing".	Self-assessment made students take responsibility for their learning. Also, students realized that self-assessment can help them to develop their affective, cognitive, metacognitive and motivational capacities.
7. Mexi &Vlachos (2014)	Mixed methods research design	Examination the extent to which the electronic	The findings were positive in terms of motivation, while autonomy and

Greece	(28 students)	European Language Portfolio through a wiki platform and self-assessment cards promote student self-assessment in English language in relation to autonomy, motivation and metacognitive awareness.	metacognitive awareness require more time by students to achieve.
8. Clift (2015) USA	Quasi-experimental (130 students)	Investigation of the impact of self-assessment with the goal setting on academic achievement and students' motivation in Mathematics.	The use of self-assessment with the goal setting motivates students and leads to higher levels of academic achievement.

Table 3 presents the main findings of those studies that examined the benefits of student self-assessment in Secondary and Primary Education.

Table 3. Benefits of Student Self-Assessment in Primary and Secondary Education

Primary and Secondary Education			
Researchers (year) Country	Research method Sample size	Aim of the study	Main findings
1. Andrade, Wang, Du, & Akawi (2009) USA	Treatment and comparison group (268 students)	Investigation of the relationship between the use of short-term and long-term rubric (including self-assessment), self-efficacy for writing and gender.	Girls had higher self-efficacy than boys before students started writing. As students were writing average self-efficacy increased, however girls' efficacy in the intervention group was higher than girls' efficacy in the comparison group, while it was found that long-term rubric use is only related to girls' self-efficacy.
2. Harris, Brown, &	Students' written peer-	Examination of the content of feedback that students	Students provided feedback to both themselves and their peers, while

Harnett (2015) New Zealand	and self-assessment comments (471 utterances)	receive from themselves and their peers. In particular, Hattie and Timperley's feedback model was used to test the content of written feedback from students in the context of self- and peer-assessment.	self-regulation only found in the self-assessment process. In addition, students in higher grades tended to do more work and get more involved in the feedback process, whereas there was more feedback during peer-assessment and less during self-assessment.

Research question 2: Does student self-assessment contribute to the development of students' skills to accurately self-assess and what are the factors that influence this ability?

Table 4 presents the main findings of the studies regarding the contribution of self-assessment to the development of secondary students' skills to accurately self-assess and the factors that influence this ability.

Table 4. Student Self-Assessment Ability in Secondary Education and the Factors that Influence This Ability

Secondary Education			
Researchers (year) Country	Research method Sample size	Aim of the study	Main findings
1. Van Gog, Kostons, & Paas (2010) Netherlands	Experimental research (39 students)	Examination of the use of video-based modeling examples to teach task-selection and self-assessment skills.	Students can acquire the problem solving, task selection and self-assessment skills when they study modeling examples.
2. Kostons, Van Gog, & Paas (2012) Netherlands	Two experiments. The sample size of the first experiment was (N=80 students) and the sample size of the second experiment was (N=90 students)	Investigation whether task-selection and explicit modeling of self-assessment contribute to the enhancement of self-regulating learning and improvement of self-assessment and task-selection skills.	Students can gain task selection and self-assessment skills when they observe a human model engaging in self-assessment, task selection, or both.

3. Chang, Tseng, & Lou (2012) Taiwan	Quantitative research (72 students)	Investigation of the consistency and difference among student self-, peer- and teacher assessment in the frame of Web-based portfolio assessment.	Existence of consistency between teacher- and self-assessment, but no consistency was found between peer- and teacher assessment as well as self- and peer-assessment. The teacher and self-assessment showed high consistency with end-of-course examination scores, whereas peer-assessment demonstrated a low degree of consistency.
4. Oi (2014) Japan	Quantitative research (169 students)	Investigation whether students can assess the cohesive devices, the overall organization pattern and the coherence of their written production, in the same way as teachers.	Students' self-assessment was not different from teachers' assessment with regard to the overall organization of written production. Regarding the other elements there wasn't found any consistency.
5. Jackson (2014) USA	The study used the Generalizability Theory design (45 students)	Investigation of self- and peer assessments' reliability and validity used for group work.	Self-assessment ratings were significantly higher than teachers' scores, whereas scores from peers were not significantly different from teachers' ratings.
6. Koukoulis (2015) Greece	Quantitative research	Investigation of the rubric as a student self-assessment tool.	Teacher's rating was consistent with scores of most students.
7. Popelka (2015) USA	Quantitative research (80 students)	Investigation of the impact that student training in self- and peer-assessment has on achievement in Mathematics and on assessment accuracy.	Self- and peer assessment training positively affected achievement in Mathematics and students' ability to accurately self-assess.
8. Zamora, Suárez, & Ardura (2018) Spain	Quasi-experimental research (198 students)	Investigation of retroactive self-regulation and error detection as determinants of students' performance. Moreover, analysis of the effect that	Students' assessments were closer to teacher's rating, when they were helped by the assessment script.

		the assessment script has on student self-assessment.	

Table 5 presents the main findings of the studies regarding the contribution of self-assessment to the development of primary students' skills to accurately self-assess and the factors that influence this ability.

Table 5. Student Self-Assessment Ability in Primary Education and the Factors that Influence This Ability

Primary Education			
Researchers (year) Country	Research method Sample size	Aim of the study	Main findings
1. Kostova & Atasoy (2009) Bulgaria & Turkey	Diagnostic investigation (92 students from Bulgaria και 82 students from Turkey)	Diagnostic investigation of student self-assessment.	The entrance exams to school and the social status contribute to the development of critical and correct self-assessment. Females had the tendency to underestimate and overestimate their academic achievements, whereas males were more confident than females.
2. Wong (2014) Singapore	Two intervention classes (75 students and 2 teachers)	Investigation of students' and teachers' perceptions about students' self-assessment ability.	Students at the age of 10 can self-assess. Teachers noted that students could assess themselves but training and guidance in the use of the procedure of self-assessment was necessary. Time and practice in self-assessment make students be better self-assessors. Both teachers and students expressed the opinion that training in the use of self-assessment is needed, whereas lack of training, lack of practice and confidence can influence students' self-assessment accuracy.
3. Paleczek, Seifert, Schwab, & Gasteiger-Klicpera	Quantitative research (564 students)	Investigation of the correlation between test scores, students'	Students' self-assessment demonstrated lower correlations with test results, whereas teachers' assessment showed

(2015) Austria		self-assessment and teachers' assessment for students' spelling and reading capacities.	higher correlations.
4. Keane & Griffin (2018) Ireland	Cross-sectional study (85 students)	Investigation whether prior literacy attainment and age can predict students' self-assessment accuracy.	Students' self-assessments became importantly more accurate in agreement with the higher prior literacy attainment and increased developmental stages. Still, students with low literacy attainment, showed difficulty accurately self-assessing themselves.

6. Discussion

The average of studies per year from 2008-2018 is about three with most studies being done in the USA (N=10), while in other countries the number of studies is relatively small. Specifically, in the case of Greece, (N=5) studies have been identified. In addition, most studies are identified in Secondary Education (N=22), compared to Primary Education (N=12). Moreover, it was found a very small number of studies that examined in parallel the subject of student self-assessment at both levels of education (N=2).

McMillan and Hearn (2008) and Brown and Harris (2014) confirm the contribution of self-assessment to improvement of students' performance and learning. The findings of this study show that self-assessment contributes to improvement of learning and performance of both secondary and primary students. Analytically, internationally in Secondary Education, the findings of this study demonstrate that student self-assessment improves students' ability to write (DeMent, 2008; Andrade et al., 2010), helps students make progress in Religious Education (Fancourt, 2008) and even self-assessment helps students perform well in external examinations (McDonald, 2009). In addition, self-assessment plays an important role in the development of learning abilities and supports learning about the English language (Dalala, 2014). Still, the use of self-assessment scripts enhances learning in Geography (Alonso-Tapia & Panadero, 2010). Besides, the implementation of self-assessment with scripts and rubrics can improve learning in this particular subject (Panadero et al., 2012). Furthermore, self-assessment has a positive effect on students' performance and understanding of scientific concepts in Physical science, whereas the process of self-assessment helps low-performing students to understand the scientific content (Thrasher, 2012). In addition, self-assessment in Chemistry can slightly improve the scores in the final assessment (Feldkamp, 2013). On the other hand, guided self-assessment in Mathematics can improve students' performance and help students address challenges more effectively and develop the learning strategies and behaviors (Yu, 2013), while in the

same subject the implementation of self- and peer-assessment has a positive effect on students' achievement (Popelka, 2015). In Geometry, cooperative learning with self-assessment positively affects performance of students with high and low cognitive skills (Hatami, 2015). In addition, it was found that self-assessment improves future performance in Physical Education (Peyton, 2017). In Greece, one study in Physics demonstrated that computer and mobile based self-assessment can help students achieve higher performance (Nikou & Economides, 2016).

In Secondary Education, apart from the contribution of self-assessment to improvement of performance and learning, there are also other benefits from its implementation, such as enhancement of students' motivation in the English language. Particularly, it was observed that students developed motivation for writing and independent learning (Dalala, 2014). In addition, in Physical Education, student motivation was increased during the course (Peyton, 2017). Still, in Greece computer and mobile self-assessment motivated students (Nikou & Economides, 2016). Enhancement of motivation as an outcome of student self-assessment is confirmed by literature review of McMillan and Hearn (2008).

Moreover, internationally in the field of Secondary Education, the findings show that self-assessment contributes to enhancement of self-regulation. Its implementation with scripts reinforces self-regulation in Geography (Alonso-Tapia & Panadero, 2010; Panadero et al., 2012). In Geometry in the context of collaborative learning, self-assessment can have a positive effect on self-regulation (Hatami, 2015). Some authors have noted that there are few studies that have examined the self-assessment process regarding self-regulating learning (Alonso-Tapia & Panadero, 2010). This conclusion is in line with the findings in this study. Specifically, it was found a small number of studies that examined the variable of self-regulation as an outcome of self-assessment procedures. Furthermore, in Religious Education various self-assessment techniques can increase students' self-esteem (Fancourt, 2008). Still, in Physical Education, self-assessment can increase self-efficacy and communication between the teacher and students (Peyton, 2017). Additional benefits of self-assessment have also been identified in Physical science. In particular, students seem to be more satisfied with their work, they work more diligently to achieve their goals, they participate more often in classroom discussions, while higher-performing students show less anxiety about the final evaluation (Thraser, 2012). Furthermore, students' engagement in self-assessment processes can be beneficial for high school students. Specifically, self-assessment can help students become introspective, analytical, independent, critical and improve their study habits. Besides, students with high professional expectations feel more capable of choosing their careers according to their personality. Moreover, self-assessment process can help students understand how all the lessons are integrated into the learning process. Still, it helps them feel that they can prepare themselves for the exams and plan their future (McDonald, 2013).

In Primary Education, self-assessment has primarily helped students improve their performance and learning. Analytically, internationally reading a model written work, generating criteria for the written work and self-assessment with rubric help students produce more effective writing (Andrade et al., 2008), whereas the use of portfolio as a self-assessment tool improves performance in communication

skills (Stylianou, 2008). In addition, in the English language, the implementation of self-assessment can positively affect students' performance although the effect sizes can be small as noted by Goto and Lee (2010), whereas self-assessment training was found, that can help students become more aware of what a good written assignment requires and it makes them understand better the writing practices and themselves as a writer (Zapitis, 2011). Furthermore, in Mathematics, the use of self-assessment with the goal setting leads to higher levels of academic achievement (Clift, 2015). In Greece, studies were found in the English language and according to findings, self-assessment improves students' speaking skills and helps them identify strengths and weaknesses in their learning (Chalkia, 2012). In the same lesson, self-assessment makes students take responsibility for their learning and contributes to the development of cognitive and metacognitive skills (Anastasiadou, 2013).

In the field of Primary Education, self-assessment also has a positive impact on motivation. In particular, the implementation of self-assessment with the goal setting motivates students in Mathematics (Clift, 2015), while in Greece self-assessment fosters students' motivation in the English language (Chalkia, 2012; Anastasiadou, 2013). At this level of education, other benefits from self-assessment procedures have also been identified. Among these, are the increase of students' self-esteem and confidence in speaking in the English language in Greek Primary Education (Chalkia, 2012). Also, in Greece, in the English language, self-assessment helps students develop their affective skills (Anastasiadou, 2013), while the electronic European Language Portfolio through a wiki platform and self-assessment cards motivate students (Mexi & Vlachos, 2014).

Internationally, studies involving both levels of education, showed that self-assessment enhances self-regulation (Harris et al., 2015), whereas self-assessment through the long-term use of a rubric can have a positive impact mainly on girls' self-efficacy (Andrade et al., 2009).

Internationally, in Secondary Education, studies investigated the topic of self-assessment ability and the factors that affect this ability. Analytically, there are studies that demonstrate that students have the ability to accurately self-assess (Chang et al., 2012; Popelka, 2015) and emphasize the importance of some factors that are crucial for gaining this ability, such as the use of video-based modeling examples to teach self-assessment skills to students (Van Gog et al., 2010), the observation of a human model engaging in self-assessment by students, (Kostons et al., 2012), the use of assessment tools such as scripts (Zamora et al., 2018) and the training of students on self- and peer-assessment (Popelka, 2015). Some of the previous findings that contribute to the development of students' skills to accurately self-assess are also confirmed by other researchers, such as the training on self-assessment (Topping, 2003; Ross, 2006) and nature of the assessment tools (Topping, 2003). Moreover, there is one study where students' self-assessment wasn't different from teachers' assessment with regard to some elements of a work, but regarding other elements there wasn't any consistency (Oi, 2014). Besides, it was found one study where students' self-assessment ratings where significantly higher than teachers (Jackson, 2014). In Greek educational reality, one study demonstrated that students can assess themselves (Koukoulis, 2015).

Internationally, in Primary Education, it was found a smaller number of studies as compared to Secondary Education that examined the topic of students' self-assessment ability and its success factors. Wong (2014) and Elder (2010) also underline the lack of research at this level of education. In particular, in Primary Education, there are studies only internationally, and these studies underline that the social status and the entrance examinations contribute to the development of critical and correct self-assessment, whereas gender affects self-assessment ability, as women tend to underestimate and overestimate their academic achievements (Kostova & Atasoy, 2009). The influence of gender is also confirmed by Topping's (2003) literature review. Despite the fact that there are studies which show lack of students' self-assessment ability (Paleczek et al., 2015), there are others studies that support that students at the age of only 10 years old have the ability to self-assess and underline the importance of training and guidance in self-assessment (Wong, 2014), whereas there are other studies which underline that children's self-assessments can become significantly more accurate in line with the higher prior literacy attainment and increased developmental stages (Keane & Griffin, 2018). Other findings of this study show that children with low literacy attainment seem to have difficulty accurately self-assessing themselves (Keane & Griffin, 2018), which is in line with the existing literature which emphasizes that performance affects self-assessment ability (Topping, 2003).

7. Conclusions

The present study examined through 36 empirical studies of last decade, in Greece and internationally, the process of self-assessment in Primary and Secondary Education in order to identify gaps and make proposals for further research. More specifically, this study investigated the benefits of self-assessment for primary and secondary students and its contribution to development of students' skills to accurately self-assess. Still, it noted the factors that affect students' ability to self-assess.

Majority of studies were found in the international area. Especially, the USA is the country with most studies, whereas according to levels of education, there are more studies in Secondary Education than in Primary Education.

Analytically, in the international field of Secondary Education, self-assessment has been explored in almost all teaching subjects with positive results, mainly in performance and learning of students, while there are fewer studies that have examined and demonstrated the contribution of self-assessment to other variables such as motivation, self-regulation, self-esteem and self-efficacy. Moreover, self-assessment increases communication between the teacher and students, increases the satisfaction of students for their work, reduces the anxiety for the final assessment, increases students' participation in classroom discussions and affects positively their targets because self-assessment helps students work more diligently to achieve their goals. Still, self-assessment affects High School students who prepare for Higher Education or career choice by helping them become analytical, independent, introspective, critical. Furthermore, it helps them improve their study habits. Yet, self-assessment procedure makes students with high professional expectations feel more capable of choosing their careers according to

their personality. Besides, self-assessment makes students understand how all the lessons are integrated into the learning procedure, and it helps them feel that they can prepare themselves for the exams and plan their future. In Greece, one study in Physics lesson showed that self-assessment can improve performance and enhance student motivation. Based on what has been found in Secondary Education, there is need to investigate, the contribution of self-assessment to other teaching subjects such as Mathematics, Chemistry, Physical Education and Language Arts and examine the impact of self-assessment process on variables such as self-regulation, self-esteem, mainly in Greece. Moreover, in Greek Secondary Education, there is need to examine the impact of self-assessment on students who prepare for entrance exams in Higher Education, regarding their degree of preparation and their ability to choose their career according to their personality.

Internationally, in Primary Education, self-assessment has been examined in less teaching subjects in comparison with Secondary Education, and this is reasonable as there are fewer studies in Primary Education. At this level of education, research has primarily demonstrated the contribution of self-assessment to improvement of performance and learning. Specifically, the impact of self-assessment has been studied in English, in Language Arts and Mathematics internationally, while in Greece only in English language. Internationally, studies showed that self-assessment motivates primary students and improves their performance and learning. In Greece self-assessment has positive effects on performance, learning and increases self-esteem and confidence in speaking in English language. Still, self-assessment motivates students and helps them develop motivational, cognitive, metacognitive and affective skills. Therefore, based on this level of education, internationally, there is need to study the impact of self-assessment on other teaching subjects such as Geography, History, Religious Education, whereas in Greece there is need to investigate the process of self-assessment and its outcomes on self-regulation, self-esteem, motivation, performance and learning in Mathematics and in Language Arts.

Internationally, in studies involving both levels of education, self-assessment procedure shows that can enhance self-regulation and self-efficacy.

Self-assessment ability and the factors that influence this ability have mainly investigated on Secondary Education with clearer and more positive findings on the self-assessment ability of students of this level of education, while at primary level there is a lack of research as nearly half of the studies have been conducted in Primary Education in comparison with Secondary Education. Especially, there are studies that underline that there is a lack of self-assessment ability of primary students and from the other hand there are studies that support that students at the age of 10 years old can self-assess. Hence, self-assessment ability and the factors that influences it, require further investigation in Primary Education.

In Greece, it was found only one study in Secondary Education that examined the issue of self-assessment ability with positive conclusions for students. Therefore, in Greece there is need to investigate the self-assessment ability of students and the factors that influence this ability in Primary

Education, because there is a complete lack of relevant research at this level of education.

In studies that examined the ability of students to self-assess in Primary and Secondary Education, it was found factors that affect this ability. Especially, in Secondary Education, the use of video-based modeling examples to teach self-assessment skills to students, the observation of a human model engaging in self-assessment by students, the use of scripts and the training of students on self- and peer-assessment contribute to the accuracy of student self-assessment.

In Primary Education, social status, training and guidance in self-assessment, and the entrance examinations can contribute to the development of self-assessment skills, while gender affects this ability as women tend to underestimate and overestimate their achievements. In addition, students' self-assessments can become importantly more accurate according to the higher prior literary attainment and increased developmental stages, whereas students with low literacy performance seem to have difficulty in self-assessment, which leads to the conclusion that students' performance affects their ability to self-assess.

8. Limitations and Proposals for Further Research

Limitation of this study is the focus on examination of Primary and Secondary Education. One more limitation is the fact that searching is restricted to specific search engines.

As proposal for further research could be the following:

• In Greek Primary Education, it is necessary to investigate students' ability to self-assess and the factors that influence this ability.

• Internationally, the examination of primary students' self-assessment ability and the investigation of various factors that may affect self-assessment ability such as gender, learning profile and learning performance could be interesting.

• In addition, the contribution of self-assessment to the reinforcement of self-regulation, self-esteem and motivation could be explored, in Language Arts and Mathematics in both Secondary and Primary Education in Greece.

• Still, the examination of the impact of self-assessment on Greek High School students that prepare for entrance examinations in Higher Education with regard to their degree of preparation and their ability of career choice based on their personality could be also very interesting.

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