

Task Commitment : Concept, Characteristic, and Its Relationship to Student Mathematics Achievements

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Abstract. Student mathematics achievement is influenced by external and internal factors. Internal factor is the inner strengths and the weaknesses of the students themselves. Task commitment included in internal factors. This study is focussed in task commitment. This study aims is not only to explore how the task commitment is conceptualized and identify the characteristics of task commitment in previous literatures, but also it describe the effects of task commitment to student mathematics achievements. This study analyzed 82 literatures related to task commitment. The data of this study are compiled from books, national and international journals, articles, dissertations, and a conference paper. This study has reviewed 10 literatures specifically discussed the concepts of task commitment, 9 literatures discussed the characteristic of task commitment and 22 literatures discussed the student achievement in mathematics and other subjects. In other words, there were only 46% of the most relevant literatures. The result shows that task commitment was conceptualised as an extraordinary power of their self to complete their task and to solve the problem in reaching a certain achievement. The characteristics of task commitment were persistence, endurance, self confidence, dedication to practice, and interest. Furthermore, it was explained that the task commitment was important and it had an impact on students' mathematics achievements. The authors hope that this paper would be a references and a bridge for other researcher to develop the instruments of task commitment by using concepts and characteristics found in this paper.

INTRODUCTION

Mathematics learning is a long-term process to help students solving the problems and perform mathematical activities using their understanding, reasoning and skills. Mathematics learning concerns for the students engagement in learning process rather than simply absorbing mathematical results [1]. The main skills needed in learning mathematics are the ability to form and manipulate abstract ideas [2]. Furthermore, students also need the understanding ability and skills including logical understanding and qualified mathematical reasoning, the problem solving ability, using information and communication effectively and learning skills effectively [1]. Beside reading mathematics book, the process of mathematics learning needs more practical lesson [3].

Mathematics lessons usually enrich the student with many kinds of task. These tasks could be the simple exercises or the complex one. These could be used to improve problem solving and almost of them could improve students' understanding [4]. Therefore, the tasks should be done to build understanding, not solely to solve them. The measurement of the success in mathematics learning is not according to the result in finishing the task, it must be reflected in managing themselves during the process [5]. Thus, it takes high task commitment in learning mathematics so that the mathematics learning could be runwell.

Task commitment is an important affective characteristic in gifted people [6]. However, teachers are more focus to measure cognitive ability than affective ability, even though the affective ability is important in helping students' cognitive ability directly to improve their mathematics learning achievements [7]. Teachers are only accurate in summing up student performance but they can not measure students' creativity and task commitment correctly [8]. Commitment to tasks in psychology is known as task commitment. According to Renzulli, task commitment was as important as the ability to process information, analytical thinking, understanding spatial relationships, and conceptual thinking [9]. Unfortunately, as the early author of the term 'task commitment', Renzulli did not develop instrument to measure it [8]. Limited informations about task commitment, so that the authors is interested in conducting this literature review.

LITERATURE REVIEW

Task Commitment

The term 'task commitment' was early introduced by Joseph S. Renzulli (1978) in the theory of giftedness. According to Renzulli, there were three main elements of giftedness: above-average ability, task commitment and creativity [10]. All three elements must be exist and interact to each other to achieve a high level of productivity [11]. The term 'commitment' related to the term 'engagement'. Commitment defined the attitude of someone who worked very hard to do or support something [12]. Commitment was not something that could not be controlled, one could choose to commit to their work or not [13]. While engagement defined emotional complicity or commitment [14]. Engagement was oriented towards one's commitment to the task [15]. There was a relationship between task commitment and task engagement. Task engagement was loosely defined as a commitment [16]. There was a clear relationship between task engagement and motivation to be successfully achieved the expected results [17]. In this case, Renzulli told that task commitment was a centralized motivations [10]. Task commitment was often associated with high motivation to achieve goals [19]. Task engagement combined aspects of cognition with self-regulation activities such as goal setting and motivation [17]. Therefore, in this study, the authors inserted some theories of task engagement as reinforcement to the task commitment concept. To improve the task commitment, we needed to develop learning motivation [20]. Motivation could affect the students participation in the classroom, task commitment, and the amount of fun gained from learning [21]. In addition, the important values of task commitment were related to intellectual development, the application of meaningful skills and intrinsic motivation [13].

METHODS

Literature review was the selection of available published and unpublished documents on the topic, which contain information, data, ideas, and evidence written from a particular standpoint to fulfil certain aims. Furthermore, literature review was an essential part of the research process and inseparable to the the success of academic research [22]. This study was a systematic literature review which aimed to providing a set of as many lists of all published and unpublished studies as well as to identify and synthesize all literature on a particular topic [23]. There were five steps used in conducting literature review, such as selecting a review topic, searching the literature, gathering, reading and analysing the literature, writing the review, and references [23]. This study discussed about the task commitment, including the definition and characteristics. The literatures were derived from books, national and international journals, an article, dissertation, and conference paper that discussed task commitment in particular and related to task commitment. The data were collected by searching in libraries databases, indexed journals, and Google Scholar with "task commitment", "commitment to task" and "task engagement" as the keywords. Overall, there were 82 literatures read and analyzed. However, only 10 literatures specifically addressed the definitions, 9 literatures conveyed the characteristics of task commitment and 19 literatures related to student mathematics achievement.

RESULT AND DISCUSSION

The Concept of Task Commitment. Table 1 show 10 literatures of the searching results convey the concept or the definition of task commitment.

TABLE 1. The Concept of Task Commitment

No.	Author	Definition
1.	Renzulli (2011)	energy brought to bear on a particular problem (task) or specific performance area [10].
2.	Callahan (2009)	the willingness to focus extraordinary time and energy to the solution of a problem, achieving excellence in performance, or creating a unique product [24].
3.	Oreck (2009)	ability to focus and persistence [25].
4.	Subotnik, Kubilius & Worrell (2011)	capability and outstanding performance potential [26].
5.	Pianyta (2016)	the internal triggering factors that drive a person to perseverance and resilience in conducting tasks they has been responsible for, even though the faced many obstacles [27].
6.	Hawadi (2002)	a strong determination within oneself which did not need any external encouragement in reaching achievements [11].
7.	Juminah (2016)	a strong determination within oneself that determines the external encouragement to reach an achievements [28].
8.	Urhahne (2011)	the power carried on a specific task or specific problem [8].
9.	Fairclough, Moores, Ewing & Roberts (2009)	task engagement is a psychological dimension that describes effortful commitment to task goals [17].
10.	Matthews, et al. (2002)	task engagement signals a patterning of appraisal and coping that promotes effortful striving directed toward task goals. One of task engagement components is energy or strength. The strength is associated with the best performance on a variety of tasks that require attention [29].

Basically, all of those definitions refer to the definitions conveyed by Renzulli. However, some experts developed them according to their versions. To define the task commitment, Renzulli, Urhahne, Hawadi and Juminah used the terms ‘strength’ while Oreck, Subotnik, Kubilius & Worrell used the term ‘ability’. Basically, the strength and the ability have related meaning because the strength is a specific part of the ability. In this case, the authors use the word ‘strength’ rather than ‘ability’. The strength is came from themselves ([11], [27], [28]) with the aim to complete the task and solve problems to achieve certain achievements ([11], [17], [24], [28], [29]).

The Characteristic of Task Commitment. Table 2 show 9 literatures of the searching results that convey the characteristics of task commitment.

TABLE 2. The Characteristics of Task Commitment

No	Author	Characteristics				
		Persistence	Endurance	Self Confidence	Dedication to practice	Interest
1.	Renzulli (1986) [10]	√	√	√	√	
2.	Pianyta (2016) [27]	√	√		√	√
3.	Kiran dan Murthy (2016) [30]	√	√	√	√	√
4.	Kim, Byeon dan Kwon (2012) [31]			√		√
5.	Hawadi (2002) [11]	√			√	
6.	Urhahne (2011) [8]	√		√	√	
7.	Callahan (2009) [24]		√			√
8.	Kennedy, Steve, Tipps, Art, dan Johnson (2007) [32]	√	√			√
9.	Porter (2005) [5]	√			√	√

In this case, the authors classify the task commitment characteristics from some of the most relevant literatures based on the most often appear keywords. The similarity of meaning in some words are grouped into a category.

For example, tenacity and strength are categorized as persistence, passion and enthusiasm are categorized as interest. From the review results, it shows the characteristics of task commitment submitted by Renzulli supported by several other researchers. The characteristics are persistence, endurance, self-confidence, dedication to practice, and interest. Thus, the synthesis of task commitment characteristics obtained then could be used as a reference to measure the student's task commitment.

Summary Findings of Previous Studies. There are 63 selected literatures from articles and journals about task commitment and related to task commitment has been reviewed. The findings show that 19 studies selected to be highlighted related to task commitment. The literature studies provide information that the high task commitment is one of the characteristics of gifted students ([5], [9], [33]). On the other hands, it is known that the task commitment influenced to the achievement, persistence in school, locus of control and motivation to achievement ([16], [17], [26], [27], [28], [34], [35], [36], [37]) and correlated with learning motivation, interest and self regulation ([20], [38], [39]). Researches have been conducted to improve task commitment by created longer working period, developed systems that allow students to choose their own learning, and facilitated in-depth learning [13]. Task commitment could also be improved through jigsaw cooperative learning [40]. Furthermore, other researches provided information that gender and task commitment were not related each other [41]. Yet another study found the contradiction that women showed greater commitment [42].

Task Commitment and Student Mathematics Achievement. Commitment or engagement is very important as it related to student academic achievements [43]. When students grew in high school, some of them did not feel uncomfortable, interesting, or relevant especially when they had difficulty in doing their duties. Many students labeled mathematics as a tedious lesson because it was clear that most of them lack of the mathematical foundations to understand the more abstract material. Students argued that not all math was fun because it required repetition and work harder [44]. Students also tend to show high engagement when given contextual tasks rather than non-contextual tasks. It could affect how students solved problems and engaged in tasks [45]. It would also cause the academic achievement of mathematics less optimal.

Task commitment contributed to exceptional performance [26]. Highly committed students tended to be more successful in achieving their goals than low-commitment students [36]. Students who had task commitment had high learning outcomes [37]. In a group, the individual with the task commitment would determine the same level as the other individual who was proficient in conducting the task, liked the person and the group leader [38]. Students with high task commitment would be compelled to be diligent and tenacious in conducting their work despite experiencing various obstacles [6].

Therefore, students with high commitment task would be able to learn mathematic well. Mathematical questions given to students would be completed and faced solely by students with high commitment tasks. If the problem could not yet be solved, the student would look for other ways to get a solution from the problem given [20]. It had been mentioned that learning mathematics was not instantaneous, but it required repetition and work hard, as well as time to complete it. By having a high commitment task, then the learning process of mathematics students would be smooth, so it would be easier to achieve their optimal achievement.

CONCLUSION

Based on the explanation above, it could be concluded that the task commitment is defined as an extraordinary power of their self to complete their task and to solve the problem in achieving a certain achievement. Task commitment is necessary in learning mathematics because it could help students to take full responsibility for the tasks given, to do the task of the willingness or the awareness itself so that students could achieve their optimal performance. The characteristics of students' task commitment in learning mathematics could be measured using aspects consisting of: Persistence, Endurance, Self-confidence, Dedicated to practice and Interests. The last conclusion is the task commitment has a relationship with students' mathematics achievements.

Task commitment is basically exclusively for gifted students, such as gifted and talented students, from both preschool and college levels. The authors hope that the future would be more useful also to assess the students of regular classes. As a matter of the fact, the task commitment itself do not come from our birth, as innate, but the task commitment could be built, and developed. As a reference for further research, research could be conducted on gender relatedness with task commitment, because the previous studies showed contradiction. Furthermore, the authors hope that the future studies are be able to develop good model or method of learning and suitable to improve students' task commitment.

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