



## **Homework**

### **Its forms and functions revisited, 2010**

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# Homework: Its forms and functions revisited

## Abstract

*Homework is seen by many teachers and parents as a useful strategy to promote student learning. However, there are persistent voices claiming that homework is ineffective and should not be used as a teaching and learning strategy. Using data visualisation techniques, the paper introduces a taxonomy of homework. In its examination of current debates about the various forms and functions of homework, this paper draws on the recently completed comprehensive review of the homework literature by the Canadian Council of Learning (2009). A key finding of the Canadian review is that the positive effect of homework on academic performance can be attributed to two interrelated factors: (a) highly developed learning-to-learn skills and (b) intrinsic motivation. In the absence of these personal attributes, homework is unlikely to be successful in fulfilling its desired outcomes. Hence, this paper concludes that investing in the teaching and learning of 'soft' skills in formal and informal learning situations is what is most urgently needed.*

## Introduction

Homework type rather than homework quantity  
may increase academic achievement  
(CCL, 2009, p. 48)

Homework is to school education as water is to duck. Despite the ubiquity of homework assignments in Australian schools, their value has been questioned and debated over many decades in the Western world, and has prompted the Canadian Council of Learning (CCL) to conduct a meta-analysis of the educational research literature (2009). Equally, the Malaysian Ministry of Education recently saw the need to provide clear policy guidelines on homework to primary school teachers. Interestingly, but not surprisingly, an evaluation by Sidu & Fook (2010) into the effectiveness of the Malaysian education strategy revealed disparity of practice and misunderstanding of the nature and purpose of homework by Malaysian teachers, which were remarkably similar to those reported by CCL.

As Sidu & Fook (2010) noted rather soberly:

The findings of the study revealed that teachers view homework favorably and see it as an important aspect in consolidating and extending upon classroom learning. ... Though school administrators ensured teachers promptly marked and assessed pupils' homework, the implementation of homework practices and teachers' adherence to guidelines provided left much to be desired. Arguably, the findings of this study cast doubts as to the effectiveness of teachers' practices in the organisation of homework in the Malaysian classrooms. (p.63)

As with many other pedagogical decisions, teachers' ideas on homework are closely related to their personal and innate theories of effective teaching and learning (Pratt,

Collins, & Selinger, 2001). Whether homework promotes learning is clearly an important issue for teachers and educational researchers and deserves close attention.

This paper is structured in the following way: First, it provides some definitions of homework. Second, it introduces ‘a taxonomy of homework’, listing various types of homework currently in use by teachers. Third, it explores the effectiveness of types of homework, drawing mainly on the compilation of data by CCL. Finally, it discusses how teachers can make homework effective by engaging students’ higher order thinking skills, so vital for 21<sup>st</sup> century learning.

## Definitions of homework

The recent review of the homework research literature conducted by CCL claims that most researchers adopt the definition offered by Cooper in 1989, because it is clear and concise. However, Australian researchers Alanne & Macgregor’s definition is somewhat different (see Table 1).

**Table 1: Definitions of homework**

	<b>Cooper’s definition</b>	<b>Australian definitions</b>
<b>Most commonly used</b>	Homework can be defined as any task assigned by schoolteachers intended for students to carry out during non-school hours.	
<b>Used by Alanne &amp; Macgregor (2007)</b>		The time students spend outside the classroom in assigned activities to practice, reinforce or apply newly-acquired skills and knowledge and to learn necessary skills of independent study.

Adapted from CCL (2009, p. 7).

For the purposes of convenience and clarity, this paper adopts Cooper’s definition, simply because it is the most used definition to date.

As noted in Alanne & Macgregor’s definition, in addition to being an important adjunct to classroom learning, and a bridge between school and home, homework can also be thought of as the development of independent learning and ‘good habits of mind’. At the early primary level, homework is likely to consist of small tasks that last for approximately 5-10 minutes and are primarily designed to develop good habits of mind or competency values (Rokeach, 1973). Teachers at this level often prescribe lower level tasks such as the practising of literacy and numeracy skills through time table lists and spelling lists that parents are required to sign as proof of completion. Older primary school children will typically be given homework that extends over longer periods of time and requires more organisation and planning. Arguably, open-ended and longer term projects, carefully designed and monitored, can be useful and engaging. Finishing off tasks and directed-practice types of activities as homework should be minimised for primary school students in favour of inquiry learning and research-based tasks (Canadian Education Association, 2009).

As students grow older and their skills develop and mature, the potential for longer

term, more creative and student-directed homework increases. The Bradley Review of Higher Education in Australia made clear that there is a mandate for a larger proportion of high school students to undertake tertiary study, including 20% of undergraduates at Australian universities from low socio-economic backgrounds by 2020 (Commonwealth of Australia, 2009). Therefore, teachers will need to know how to assist students to manage their time on both short- and long-term projects, so that students entering tertiary institutions can demonstrate a strong work ethic and good study habits.

This paper aims to provide an argument that some types of homework lend themselves better to this task than others. To help teachers grapple with this issue, the next section introduces a taxonomy of homework, which is colour coded, for ease of recognition of depth of potential knowledge construction (the darker the colour, the greater the potential for deep thinking).

## **A taxonomy of homework**

Research on homework although inconclusive at present, provides some useful guidance to teachers. There is agreement that different types of homework have different effects on students. The taxonomy of homework presented below builds on the work of Lee & Pruitt (1979), Epstein (1983), and Murphy, Decker, Chaplin, Dagenais, Heller, Jones, & Willis (1987). The taxonomy (see below) is intended to clarify the options available to teachers. It groups homework according to its function—that is, according to its specific goal—and provides useful examples for each category. The categorisation of homework, as outlined in Table 2 below, take as their starting point the characterisation of assignment tasks outlined by educational researchers above and more recently by O’Donnell, Reeve and Smith (2007). Generally speaking, homework can have a number of functions, but generally all assigned homework tasks allow teachers to extend the school day. This time can be used to reinforce material presented in class, to allow students to prepare for learning and teaching activity in advance, or to enable students to extend their learning beyond what has been presented in class.

### **Three types of homework**

This taxonomy of homework draws on Bloom’s taxonomy of learning in conjunction with Anderson and Krathwohl’s revised taxonomy as a theoretical guide in exemplifying the various types of homework (Anderson, Krathwohl, Airasian, Cruikshank, Mayer, Pintrich, Raths, & Wittrock, 2001).

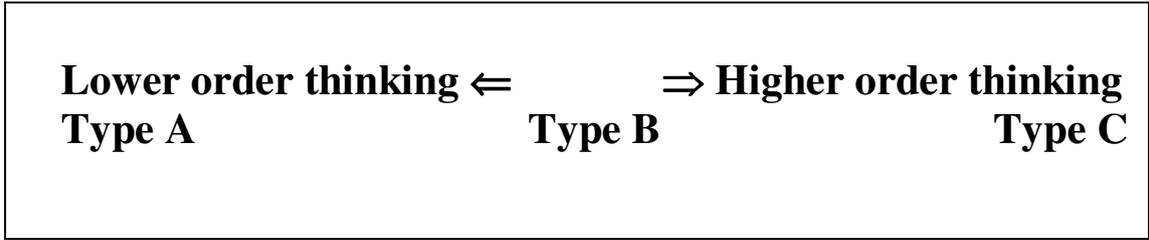


Figure 1: Spectrum of thinking



**Table 2: Taxonomy of Homework**

	Type A			Type B		Type C	
<b>What is it?</b>	<i>Homework based on previously taught material</i>			<i>Homework based on new material</i>		<i>Homework that expands on and extends to real-life situation, moving beyond classroom learning</i>	
<b>What is its purpose?</b>	The purpose of this kind of homework is to <b>reinforce what the teacher has taught.</b>			The purpose of this type of homework is to encourage students to engage with <b>material that is new</b> and will be presented in class shortly.		The purpose of this type of homework is to emphasise higher-order thinking skills and perspectives, and have <b>real-life applications.</b>	
<b>What is its nature?</b>	<p><b>Review:</b></p> <p>Revisiting material that has been presented recently to students</p>	<p><b>Practice:</b></p> <p>Similar to review, but with the practising of a particular and isolated skill</p>	<p><b>Rehearsal:</b></p> <p>Similar to practice, but with the feature of prolonged practice of multiple skills or a particular skills set</p>	<p><b>Preparation:</b></p> <p>Engage with a new topic or skill and prepare for specific class lessons. The idea is that students will come to class with questions about their difficulties.</p>	<p><b>Experience:</b></p> <p>Engage students with life experience questions, connecting them with their immediate community that will be built on in subsequent classroom work.</p>	<p><b>Exploration:</b></p> <p>Inquiry-learning homework involving exploration lets students look at new and different areas of a subject according to their interests and preferences.</p>	<p><b>Expression:</b></p> <p>Homework involving expression gives students an opportunity to be creative, but are also more time-consuming and require well-developed research, critical thinking and problem-solving skills. These homework tasks are generative, meaning they require students to generate new knowledge. They require much planning, and close alignment between learning outcome and learning task.</p>

<b>Two practical examples per category</b>	Students are required to answer questions based on a chapter that has been taught.	Students are given a world map, 15-20 country flags and names and they are required to place the names and corresponding country flags on the map.	Foreign language students are required to rehearse their part for an upcoming play, working on their pronunciation.	Students are asked to read a section of text before class and prepare one multiple choice questions for peers, constructing one correct, one semi-correct and one false answer, to test their comprehension of the material presented.	Students are required to take a survey of neighbours' preferences for one or another type of drink in the morning for a lesson on graph making.	Students are asked to pick a neighbouring Asian country of interest and construct a travel brochure highlighting the special attractions of that country.	Older students (Years 5-7) are required to form a project group that is able to demonstrate the utility of geometry to younger children in the school through the construction of a new and innovative school playground.
	<b>OR</b> Students are required to summarise the key points presented in a chapter.	<b>OR</b> Students are given a paragraph of writing. They need to locate and underline all regular verbs.	<b>OR</b> Students are required to rehearse a 5-minute class presentation on a given topic.	<b>OR</b> Students are required to work on 5 maths problems that employ new processes and prepare some questions to ask in class about problems with conceptual understandings.	<b>OR</b> Students are required to survey 3-5 children between the ages of 3 and 6, asking them about their current concerns. They then need to generate a list of possible solutions to the top three problems encountered by these children.	<b>OR</b> Students are required to use online biographical resources provided by the Australian government to research and write a five-page <i>minibiography</i> of a less-well-known Australian parliamentarian from 1901 for the upcoming school newsletter.	<b>OR</b> Year 4-6 school councilors are asked to survey student, staff and parent opinions and write an editorial about a problem in the school.



## Benefits of homework

The research literature on the effects of homework on achievement indicates that homework is associated with higher achievement at the middle and secondary school levels but not at the primary school level (Cooper & Valentine, 2001; McMullen & Busscher, 2009). In fact, more time spent on homework often appears to be associated with lower achievement in students (Trautwein, Schnyder, Niggli, Neumann & Ludtke, 2009). How could doing more academic work result in less achievement? The above mentioned homework research studies have suggested several possibilities. It seems that there exists an inverse relationship between time spent on the homework task and intrinsic motivation. That is, less able students need to spend more time on the same assignment task than do more able students. As Trautwein et. al. (2009) explain:

[T]he relationship between homework time and achievement was moderate at the school level and negative at the individual level. ... homework frequency – but not homework time – was a significant predictor of achievement at the class level. ... [E]xtended homework times reported by individual students were more likely to reflect motivational problems or problems of understanding than to be a sign of high student motivation or effort. (p. 79)

Van Voorhis and Epstein (Van Voorhis, 2003; Epstein & Van Voorhis, 2001) have explored the different reasons that teachers assign homework and have developed an interactive program in which parents and students work on homework together. Their TIPS (Teachers Involve Parents in Schoolwork) program (Epstein, 2001) encourages students and parents to work together on learning activities in the home. Their research indicates that this approach increases student achievement. Unfortunately, it needs to be acknowledged that this strategy may in fact further disadvantage children whose parents are incapable and/or unwilling to engage in such collaboration with the school.

CCL's comprehensive review concluded that 'homework effort' is seen as a key predictor of increased academic achievement through homework. Their commonsense conclusion, based on empirical evidence is simple:

A student can easily spend a great deal of ineffective time on homework, and teachers can assign homework with great frequency, but absence of student effort will suppress any benefit. (Canadian Council of Learning, 2009, p. 45)

CCL's findings lend support to the view that homework that can be classified as types 2 and 3 (see taxonomy table), which enlist students' higher-order thinking skills are "likely to increase, and unlikely to impede, academic achievement, ...[as] [t]hese homework assignments demanded active learning, rather than rote repetition of classroom material" (Canadian Council of Learning, 2009, p. 46). Despite this affirmative view, the authors are cautious, noting that more direct and explicit research is needed that tests the effect of pedagogically enhanced homework (types 2 and 3) versus traditional homework (types 1) or no homework to arrive at conclusive results of the positive effect of pedagogically enhanced homework on students' academic achievement. There is a further complication noted, which is the socio-

demographic differences that are poorly addressed in the current research literature (CCL, 2009, p. 49).

Regardless of the caveat noted above, CCL's conclusion is as follows:

Homework that increases active student engagement with the homework task likely boosts achievement. A meta-cognitive component where the students must think about their own learning may be an important part of this engagement. This was the primary result of the 'pedagogical enhancement' studies, as well as the net impact studies that indicated the importance of 'effort' rather than 'time.' While unsurprising, since inducing active learner engagement is typically considered a core principle of teaching and learning, lived experience may suggest it is a principle that homework assignments often do not instantiate. (CCL, 2009, p. 50)

In other words, CCL's (2009) meta-analysis of the value of homework arrives at a similar conclusion to that of Sidhu & Fook (2010) using different data and contexts. Both seem to agree that students' lived experiences are not yet allowing them to benefit to the extent required from homework assignments that would allow them to make personal and measurable gains in academic performance because of assigned homework by their teachers. Hence, this paper argues that homework will need to be reconceptualised as talent development. Perceiving homework as an avenue for the independent practice of higher-order thinking skills and work ethics (habits of mind) rather than lower-order practices that entail teacher-directed, whole-class information transmission, so aptly referred to by Freire as 'the banking model of education' (1970), will increase skills and knowledge and affect students' personal motivation. To educate for the 21<sup>st</sup> century knowledge society, teachers need to review their personal beliefs about homework assignments.

## **21<sup>st</sup> century learning and teaching: Talent development through homework**

Effective use of homework requires, so this paper argues, that teachers have clear learning and teaching goals and explicit reasons for using various types of homework that are related to these goals. Traditionally, homework was used to provide practice in skills taught during class; however, more effective homework tasks incorporate creativity, problem-solving and research, in preparation of a new topic or issue to be elaborated in class. Teachers must be aware of cultural, social and learning differences among their students when planning homework tasks, so that appropriate adjustments can be made to accommodate differences in interest, ability, and background, and special needs.

The CCL study (2009) makes explicit that homework assignments involving higher order thinking skills and inquiry and problem-based approaches, demand active learning (rather than rote replication of material covered in classroom) and these have an impact on academic performance.

## **Conclusion**

The use of homework assignments in Australian school education has been an important, but nevertheless, controversial tool in the repertoire of teachers' learning and teaching strategies. Although homework assignments are dispensed frequently in many schools and classrooms, there is continued robust debate about their desirability or utility among educational researchers, teachers and parents. The present paper, which makes extensive use of the review of homework literature conducted by the Canadian Council of Learning in 2009, emphasised the value of a particular type of homework. There seems to be growing evidence that many homework practices are ineffective and that more time should be devoted to helping students develop and practise learning-to-learn skills and drawing on their intrinsic motivation to learn. Hence, the key message is: homework's impact on achievement stems, most likely, from effort more than time. When students engage with their homework – either because it is intrinsically motivating and/or because they have good study habits – they are likely to receive long and short-term benefits from their endeavour, some of which will be reflected in improved academic performance.

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