Educational Research Review 10 (2013) 133–149

Contents lists available at SciVerse ScienceDirect

Educational Research Review

journal homepage: www.elsevier.com/locate/EDUREV

Review

A meta-analysis of the effects of face-to-face cooperative learning. Do recent studies falsify or verify earlier findings?

Eva Kyndt [a,b,*], Elisabeth Raes [b], Bart Lismont [b], Fran Timmers [b], Eduardo Cascallar [b], Filip Dochy [b]

[a] University of Antwerp, Belgium
[b] University of Leuven, Belgium

ARTICLE INFO

Article history:
Received 10 April 2012
Revised 18 December 2012
Accepted 21 February 2013
Available online 6 March 2013

Keywords:
Cooperative learning
Meta-analysis
Learning outcomes
Achievement

ABSTRACT

One of the major conclusive results of the research on learning in formal learning settings of the past decades is that cooperative learning has shown to evoke clear positive effects on different variables. Therefore this meta-analysis has two principal aims. First, it tries to replicate, based on recent studies, the research about the main effects of cooperative learning on three categories of outcomes: achievement, attitudes and perceptions. The second aim is to address potential moderators of the effect of cooperative learning. In total, 65 articles met the criteria for inclusion: studies from 1995 onwards on cooperative learning in primary, secondary or tertiary education conducted in real-life classrooms. This meta-analysis reveals a positive effect of cooperative learning on achievement and attitudes. In the second part of the analysis, the method of cooperative learning, study domain, age level and culture were investigated as possible moderators for achievement. Results show that the study domain, the age level of the students and the culture in which the study took place are associated with variations in effect size.

Contents

* Corresponding author. Address: Centre for Research on Professional Learning & Development, Lifelong Learning (KULeuven), Dekenstraat 2 – Box 3772, 3000 Leuven, Belgium. Tel.: +32 16 32 57 59.
E-mail address: Eva.Kyndt@ppw.kuleuven.be (E. Kyndt).

1747-938X/$ - see front matter © 2013 Elsevier Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.edurev.2013.02.002

1. Introduction

Learning has evolved into more interactional and active forms (Dochy, Segers, Van den Bossche, & Struyven, 2005). In general it is believed that students learn more when they work together than when they work alone (Johnson & Johnson, 2009; Johnson, Johnson, & Smith, 2007). A lot of studies on cooperative learning exist (Decuyper, Dochy, & Van den Bossche, 2010) and most of this research confirms that there are positive effects of cooperative learning on different outcomes. Also several meta-analyses have been performed to combine and integrate the findings of different studies on cooperative learning. But these meta-analyses mostly included studies from before 1995 and often deal with only one or two educational levels. Consequently, a meta-analysis on more recent studies and within all educational levels seems appropriate.

The first goal of this meta-analysis is to replicate the previous research on the main effects of cooperative learning. But not only the effectiveness of cooperative learning is of importance, attention should also be given to the question under which conditions cooperative learning yields the best effects. Hence, the second goal is to address potential moderators of the effect of cooperative learning. This is innovative in the sense that cooperative learning has for example never been investigated in relation to the culture in which it takes place. To achieve these goals we opted to use a statistical meta-analysis. In the first section of this review study a closer look will be taken at the terminology and definitions of cooperative learning.

In the second part the different methods of cooperative learning will be presented. Findings of earlier review studies will be discussed in the following section. Interesting findings will be highlighted and further explored in the current meta-analysis. Section four will cover the research questions and will be followed by the method section. Subsequently, the results of this meta-analysis are reported and conclusions will be drawn in the final part. The results will be compared with prior research and possible explanations for our findings will be given. Limitations and suggestions for future research are put forward.

2. Cooperative learning terminology

The key concepts in the field of group learning are collaborative and cooperative learning (Decuyper et al., 2010). Some authors distinguish between these two concepts while others do not. Bruffee (1995) for example claims they differ for two reasons. "First, collaborative and cooperative learning were developed originally for educating people of different ages, experience, and levels of mastery of the craft of interdependence. Second, when using one or the other method, teachers tend to make different assumptions about the nature and authority of knowledge" (p. 12). Briefly, cooperative learning is used for children, whereas collaborative learning is rather used to refer to college and university students (Bruffee, 1995). Subsequently Bruffee (1995) stated that there is a difference in nature and authority of knowledge. Cooperative learning is directed towards learning of foundational knowledge, whereas collaborative learning is used for learning of non-foundational knowledge. Foundational knowledge is basic knowledge about spelling, grammar, history, mathematics, etc. Non-foundational knowledge equals processes such as critical argumentation, reasoning or construction of new knowledge. As a consequence, the responsibility belongs to the learners themselves (Bruffee, 1995).

According to Panitz (1996) the definitions of both forms of learning are slightly different. Collaboration is a philosophy of interaction and personal lifestyle whereas cooperation is a structure of interaction, a classroom technique, designed to facilitate the accomplishment of an end product or goal. In this study, the focus will be on cooperative learning.

Slavin (1990) states "in cooperative learning methods, students work together in four-member teams to master material initially presented by the teacher" (p. 2). Evidence shows the effectiveness of cooperative learning methods for a broad range of outcomes. Cooperative learning can result in better achievement, improved intergroup relations, acceptance of mainstreamed classmates, enhanced self-esteem and positive attitudes. Slavin (1990), however, mentions one important pitfall that must be avoided for cooperative learning to be effective. "If cooperative learning methods are not decently constructed, they can allow for the 'free-rider' effect" (Slavin, 1990, p. 16). This effect, also known as social loafing, occurs when a group member does less work when working in a group than when working alone. This group member goes for a free ride, while the other group members put in much effort to achieve their goal. This phenomenon will take place more often when the whole