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## The effectiveness of inter-teaching: Some international evidence

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### Abstract

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This study compares final grade results across two different cohorts of accounting students (one using a traditional lecture model and the other inter-teaching – an innovative pedagogy). Boyce and Hineline (2002) designed inter-teaching to engage students in their learning and enhance their academic performance. Accounting courses historically have had a record of high failure rates at an offshore campus of an Australian University, in Vietnam. Final grade comparisons were made between students exposed to inter-teaching and those taught under a traditional lecture-tutorial model. The treatments and participants were independent of each other; however, the course material, assessment and instructor, for both teaching methods, were the same. Both teaching methods were measured for impact in relation to academic performance effectiveness and compared for any differences. The students exposed to inter-teaching performed statistically significantly better than those taught under the traditional model. The findings suggest that inter-teaching is an important tool to encourage the development and improvement of student learning performance, increases student accountability for their learning and advances academic performance in accounting courses.

## Introduction

This study compares the impact of the traditional lecture and tutorial teaching model (hereafter termed the lecture model) with the inter-teaching method. A comparison was made between two different cohorts of first year accounting and business students to understand the consequences for their learning of accounting at an Australian university campus based in Vietnam. The ongoing learning difficulties experienced by Vietnamese accounting students, their consequential low levels of engagement and their mediocre grades may be outcomes, at least in part, of the lecture model – the main instruction method of accounting courses involved in this study. The accounting education literature describes how the prevalence of traditional pedagogy through the lecture model, has contributed to the poor state of accounting education (Palm & Bisman, 2010; Pathway Commission, 2012; O’Connell, Carnegie, Carter, Helliari, Watty, Hancock, & de Lange, 2015). It is essential to consider investigating alternative teaching models which purport to engage students in accounting education, for example, inter-teaching, rather than reliance on traditional teaching methods which “demand rote memorisation; with students being trained rather than educated” (Carr & Mathews, 2004, p. 93).

Inter-teaching, first developed by Boyce and Hinline (2002) replicates many aspects of behavioural learning approaches developed by the research of Lindsley (1964), Keller (1968), and Pigott, Fantuzzo, and Clement (1986). Boyce and Hinline (2002) defined inter-teaching “as a mutually probing, mutually informing conversation between two people” (p. 220). They developed inter-teaching to involve students in their own learning and the belief that “learning is something a person does, not something that happens to him or her” (Boyce & Hinline, 2002, p. 215). Inter-teaching is primarily concerned with students developing self-learning tactics, for example, learning from each other through small group tutorial discussions and being prepared for effective participation. Students are also able to seek immediate clarification from the lecturer on the areas of discussion with which they are experiencing difficulties. Inter-teaching is a student-centric teaching model which diverges from the traditional teacher-centred lecture model. It attempts to engage students in their learning and has been found to enhance student learning by involving them in preparation, peer discussions, listening, reflection and feedback; all skills considered necessary for students to analyse and evaluate accounting problems (Boyce & Hinline 2002; Saville, Zinn, & Elliott, 2005; Saville, Zinn, Neef, Van Norman, & Ferreri, 2006; Saville & Zinn, 2009; Saville, Bureau, Eckenrode, Fullerton, Herbert, Maley, & Zombakis, 2014; O’Connell et al., 2015). There is an urgent need to find pedagogies in accounting education that allow students to critically think when constructing their accounting solutions (Chabrack & Craig, 2013; McLaughlin, Roth, & Mumper, 2014).

The key research question addressed in this study is, “What is the impact of inter-teaching on Vietnamese student academic performance in an accounting course?” The course known as Management Accounting Business (MAB) was selected because more than 40% of students were

failing each trimester.

This study makes three important contributions to the accounting education literature. First, relatively little research has been undertaken to examine how student-centred pedagogy contributes to accounting students’ performance in the emerging economies of the world (Saville, 2011). This is considered important because Vietnamese tertiary students are generally viewed as typically obedient and unwilling to question their instructors. They consider the instructor as the main source of knowledge and rarely speak up in class. Vietnamese students are passive recipients, listening to lectures and reproducing memorised information in exams (Thompson, 2009). Thompson (2009) found that Confucian ethics dominate the mindsets of both Vietnamese teachers and students, with obedient students taught not to question from a very young age. It also builds on a gap in the literature by providing academic performance evidence, sourced directly from final exam grades of Vietnamese participants, into factors driving and impeding student learning in the classroom.

The next section of this paper provides an overview of studies into the state of accounting education within universities on accounting education effectiveness; next the lecture model is examined, followed by a review of the studies of inter-teaching and an empirical assessment of the inter-teaching model. Findings are next presented that evaluate students’ final grades across two consecutive teaching periods, one based on the lecture model and the other based on inter-teaching. The paper concludes with a discussion of key findings together with study limitations and avenues for future research.

## Literature Review

### Overview of deficiencies in accounting education

A number of accounting reports in the US (American Accounting Association, 1986; Albrecht & Sack, 2000; The Pathways Commission, 2012), the UK/Europe (Paisey & Paisey, 2001; International Accounting Education Standards Board, 2015) and Australia (Mathews, Jackson, & Brown, 1990; Capellatto, 2010; Evans, Burritt, & Guthrie, 2010; O’Connell et al., 2015) have examined the state and deficiencies of accounting education. All too often accounting students are exposed to ineffective learning experiences because the technical content, instructional methods and assessment of accounting courses have not kept pace with the world in which accounting is practiced. Some researchers have argued that the technical content of accounting courses encourages passive teaching, that is, the predominant use of the lecture model for transferring information to rote-learning students who recite or restate this information in final examinations (Mladenovic, 2000; Jackling, 2005; Springer & Borthick, 2007; Palm & Bisman, 2010; Coetzee & Schmulian, 2012; Jackling, de Lange, & Natoli, 2012; O’Connell et al., 2015). In particular, more effort is needed on “developing the professional skills of accounting graduates, such as communication, critical thinking, conflict resolution and negotiation skills” (O’Connell et al., 2015, p. 10).

Mathews, Jackson, and Brown (1990), conducted a major Australian accounting education review, and described accounting education as being in a "long period of chronic neglect" and in "great need of support and revitalisation" (Mathews, Brown, & Jackson, 1990, p. xix). Albrecht and Sack (2000) in evaluating American accounting education, observed that it had not kept pace with business needs and that universities had not progressed or updated accounting education practises leading to a fall in demand for accounting majors. They suggested that universities are not teaching accounting concepts in the most effective way and alluded to the fact that the lecture model is inefficient and not pedagogically effective. In other words, the teaching of accounting has not substantially changed to meet employer expectations. The findings of the Pathway Commission on Accounting Higher Education (2012) sponsored by the American Accounting Association arrived at a similar conclusion. They found classroom instruction for accounting students removed from the complexities of the "real world" contexts of accounting practice. European accounting students are no different, as they were found to be "exposed to technical material in a vocation-focused way, disconnected from the complex real-world settings to which students are bound", according to Rutherford (2011, p. 142). These findings are consistent with the research of Palm and Bisman (2010) who maintained, in their study of 21 higher education institutions in Australia, that first year Australian accounting courses are poorly delivered and assessed. They indicated that this is because of the technical content of accounting courses which encourages the passive transfer of knowledge, rather than providing learners with user perspective content and activities that encourage construction of their own understandings (Palm & Bisman, 2010).

Despite the adverse findings in many of these reports, it has not paved the way for accounting education to encompass a broader approach to teaching by introducing student-centred teaching pedagogies or facilitating a more engaging experience, generally, for accounting students. The traditional teacher-centred pedagogy, characterised by the teacher standing in front of the classroom conveying information to students, the majority of which is unable to be absorbed, is still predominately the method for teaching accounting students today (Coetzee & Schmulian, 2012; O'Connell et al., 2015). The previous research by Mathews et al. (1990) still reflects the systemic problems in accounting education, according to de Lange and Watty (2011). They maintained that the pedagogical problems with accounting education reported several decades ago "still exist and, in some cases, they have been exacerbated" (de Lange & Watty, 2011, p. 626). In an Australian study by Wygal, Watty, and Stout, (2014), they reported that "there is little direct evidence from the field of accounting education, available to-date, regarding such characteristics or antecedents of teaching effectiveness in the student learning environment" (p. 325). O'Connell et al. (2015) pointed out that academics were questioning the quality of teaching professional skills. They stated institutions needed "strong leaders with vision and engaged academics who are willing to implement strategies for the balance between professional knowledge and professional skills" (p. 55). Regrettably, for the most part, academics have not been able to rise to the challenges that

this study has revealed and have assumed an undemanding strategy whereby they continue the status quo or place an over-emphasis on the instruction of technical skills (O'Connell et al., 2015).

Carmona argued that accounting educators should drive accounting education reform through a bottom-up approach, as described by O'Connell et al. (2015). However, implementing student-centred learning settings in the accounting education space is not without significant challenges. Accounting schools are faced with growing student/ staff ratios and an increased use of sessional staff, demanded by university administrators, as government education funding decreases (O'Connell et al., 2015). Introducing more effective educational practices requires time and preparation which can inhibit already time-poor academic research output (Watty, 2007; Watty, de Lange, Carr, O'Connell, Howieson, & Jacobsen, 2013). Academics perceive that research rather than teaching innovations is what will be most rewarded. For example, introducing student-aligned practices involves increased workload for students and instructors, incorporating, for example, pre-class preparation. This makes it all the more difficult for instructors to take on a more demanding teaching practice and, therefore, the lecture model becomes the easiest option (Sturmey, Dalven, & Fienup, 2015).

Not only are there concerns about the content and pedagogies but also about student satisfaction. For example, Watty et al. (2013) examined 'Good Teaching' from the Course Experience Questionnaire, a national survey conducted in Australia, completed by undergraduate accounting students across programs and universities each semester, and found that accounting students are among the least satisfied of all disciplines with their teaching experience. It is apparent, through teaching methodologies that are teacher-centred, that accounting students are currently experiencing inadequate accounting education. In the next section, the research literature and limitations associated with the teacher-centred lecture model are discussed.

### **The traditional lecture and tutorial model**

Biggs (1979, 1989, 1999, 2012 & 2014) observed that the lecture model encouraged a lower level of cognitive activity. His research demonstrated that meaning cannot be conveyed through the mere transfer of information in a lecture but is shaped by the student's own involvement in learning (Biggs, 2012). Biggs (1979, 1989, 1999, 2012 & 2014) consistently maintained in his research that deep learning is required if students are to process, understand and retain information. This is difficult to achieve in the lecture model. Risko, Anderson, Sarwal, Engelhardt, and Kingstone (2012) observed that students' mind-wandering<sup>1</sup> increased as the lecture progressed. In particular, students' memory recall for lecture material was statistically significant for "questions drawn from the second half of the lecture compared to questions drawn from the first half of the lecture" (Risko et al., 2012, p. 237). A study of mind-wandering by Durantin,

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<sup>1</sup>Mind-wandering is defined as the experience of thoughts not remaining on a single topic for a long period of time, particularly when people are engaged in an attention-demanding task (Risko et al., 2012).

Dehais, and Delorme (2015) found participants in their experiment of time on task were not able to stay focussed during the experiment. The implication is that it is difficult for humans to concentrate for any length of time, perhaps especially so during a lecture covering technical accounting matters. Thus, how students retain information, or learn, has strong implications for the way information is taught. While researchers have highlighted the benefits of more cognitive activity through engagement in the classroom it appears that few accounting educators have significantly altered their teaching methods from the lecture model (O'Connell et al., 2015).

Accounting education reform has been discussed for so long without any real change, it is, therefore, open to the initiative of academics to drive changes in their teaching and improve learning outcomes by adopting engaging pedagogies. There have been several studies into the development of engagement teaching pedagogies in an effort to overcome the shortcomings of the lecture model starting with Skinner (1953, 1968), who examined the application of behavioural principles. Keller's (1968) personalised system of instruction and the reciprocal peer tutoring teaching model (Griffin & Griffin, 1998) were examples of the application of behavioural principles in the classroom. Skinner (1968) argued that for substantive learning to occur in the classroom, "students must be engaged in learning by doing, learning from their experience and learning by trial and error" (p. 128). Inter-teaching is adapted from behavioural theories in respect to the classroom and is discussed next. Inter-teaching directly answers the criticisms given in the research by providing an innovative engaging method of instruction that for the majority of class- time has students learning from each other (Boyce & Hineline, 2002).

### **Inter-teaching**

Boyce and Hineline (2002) originally designed inter-teaching to provide "a mutually probing, mutually informing conversation between two people. It would last for 30 to 40 minutes and dealt with the main points in a specified selection of material" (p. 220). Their intention was to improve student learning outcomes in psychology courses which traditionally suffered from poor participation and learning. The following is an example of an inter-teaching session in a Developmental Psychology course developed by Kienhuis (2013).

Students are required to complete the preparation guide questions before coming to class. The guide includes readings and questions that cover the week's learning objectives, so students can participate and be involved actively in peer discussion groups. Tutorials are made up of students working in small-groups discussing the pre-class questions, problem solving and analysing case studies. Tutors follow a standard marking rubric, observing and grading students randomly, on effective discussion, prior preparation and active participation. Inter-teaching discussion grades encouraged the students to attend classes prepared. Towards end of class, students give feedback to the tutors on the more challenging areas of the discussion and these areas of difficulty are clarified in the next class by the lecturer (Kienhuis, 2013).

A key element of Boyce and Hineline's inter-teaching model is Keller's (1968) personalised system of instruction. Keller's teaching method embraced the following components; student self-pacing, student understanding before progressing, motivational sessions and written feedback and the utilisation of peer tutors for grading and comment (Keller, 1968; Foss, Foss, Paynton, & Hahn, 2014). Research consistently showed the success of Keller's model, especially in how it improved student learning when compared to the lecture method of teaching (Buskist, Cush, & DeGrandpre, 1991; Foss et al., 2014). The second component of inter-teaching is a variant of the reciprocal peer tutoring teaching model in which students test each other from questions they have developed (Griffin & Griffin, 1998). Student peer discussions benefit from reciprocal peer tutoring through improved positive reflective knowledge-building, according to Roscoe and Chi (2007).

Reciprocal peer tutoring has demonstrated improvements in academic achievement through the work of Pigott, Fantuzzo, and Clement (1986), Griffin and Griffin (1998) and Bowman-Perrott, Davis, Vannest, Williams, Greenwood, and Parker (2013). Bowman-Perrott et al. (2013) suggested that the successful features of the reciprocal peer tutoring model included increased time for discussion, the repetitive nature of tutoring, a structured approach which incorporates frequent opportunities to reply and the chance to receive ongoing feedback from peers. Inter-teaching's peer-tutoring component, dyadic discussion, which permits students to interact with each other are key to its success (Boyce & Hineline, 2002). In addition, Boyce and Hineline (2002) used the popular precision teaching tool as a third component of their inter-teaching repertoire.

Precision teaching is concerned with the progression of a student's learning, that is, students follow a plan that is changed according to their performance. In their study of precision teaching, Binder and Watkins (1990) observed positive improvements for students when compared to the lecture model, with lower implementation costs for schools. Binder and Watkins (2013), in their review of precision teaching adaption in American classrooms over the last 25 years, stated that this teaching model "may be the most thoroughly validated and consistently effective method yet developed in English-speaking schools" (p. 74). The next section examines the research into the impact of inter-teaching.

### **Studies into the impact of inter-teaching**

Boyce and Hineline's inter-teaching method was first tested for student academic performance by Saville, Zinn, and Elliott (2005) who randomly assigned students to inter-teaching, lecture, assigned reading, and no-treatment control conditions. They reported a statistically significant difference in grades with students in the inter-teaching group recording higher academic results than students in the other group. They concluded that inter-teaching is a superior substitute for the lecture model of instruction. Saville et al. (2005) suggested that the combination of characteristics of an active and cooperative learning environment facilitates learning and results in better recall for students.

Saville et al. (2006) modified their research design to investigate the usefulness of inter-teaching, in comparison to the lecture model, in a 'normal' classroom setting. They reported quiz scores substantially higher in the inter-teaching classes than in the lecture classes (Saville et al., 2006).

In a further study, conducted in a university setting, Saville and Zinn (2009) analysed the concept of quality points. Quality points are awarded (5% of a student's exam grade) based on how well a student's discussion partner performed on particular exam questions (Saville & Zinn, 2009). The purpose of Saville and Zinn's (2009) research was to establish whether the introduction of quality points improved exam scores for undergraduate psychology students. 44 undergraduate psychology students participated, and the research method replicated the study of Saville et al. (2006). They saw no significant difference between assessments incorporating quality points (inter-teaching) and not incorporating quality points (lecture model).

Another study by Saville et al. (2012) examined how low, moderate and high performing psychology students performed when teaching conditions were alternated between the lecture model and inter-teaching. They claimed that exam grades were significantly higher for students with previously low scores, but they also found that exam performance for students with high GPAs only marginally changed when instructed with inter-teaching.

A more recent experiment on inter-teaching by Saville et al. (2014) compared inter-teaching and the lecture model of teaching with 134 students completing three quizzes after the respective teaching methods. The mean scores for inter-teaching were significantly higher compared to the lecture scores. Inter-teaching again produced a decisive advantage over the lectures for the same students (Sturmey, Dalfen, & Fienup, 2015).

Zyak and Paulk (2014), however, found that students did not score higher on exams for inter-teaching sessions and those students had a preference for lecture-based instruction. However, a major limitation was the sample size of 21 students, and according to these researchers, this may have "shifted the mean scores significantly and influenced the interpretation of the effects of inter-teaching or lecture" (Zayac & Paulk, 2014, p. 10).

### **Studies into student perceptions of inter-teaching**

Goto and Schneider (2009) focussed on the merits of preparation guides and whether they positively improved the inter-teaching experience for students. They found over 80% of the 32 students felt inter-teaching preparation guides assisted them to prepare well for class. Students also described how preparation guides made them want to understand the material because they needed to explain it to their peers (Goto & Schneider, 2009). However, students were critical about some of the peer discussions which did not always work as some students had not taken the time to prepare.

Tsui's (2010) research observed that inter-teaching was overwhelmingly positive for student exam grades, class attendance and student satisfaction. Her qualitative study provides many descriptive insights not demonstrated by previous studies. Tsui found that "inter-teaching compelled students to take responsibility for their own learning and gave students control over the teacher's lecture activities" (2010, p. 33).

Kienhuis (2013) examined inter-teaching in several psychology and accounting courses at a large university in Australia. She found that students commented on better engagement associated with reading, pre-class preparation and class discussion where inter-teaching was adopted (Kienhuis, 2013). Students highlighted in the post-test survey that they preferred inter-teaching because they found "the opinions of their peers offered a different perspective and the emphasis on self-study gave them a better understanding of the content" (Kienhuis, 2013, p. 15).

In a study motivated by an observation that students did not pre-read course materials for political subjects, Slagter and Scribner (2014) described how they effectively implemented inter-teaching for their political courses to encourage student engagement and improve student skills in understanding complex political arguments. They used this innovative teaching method in five courses over two semesters with a larger cohort of students ( $n = 130$ ); and, through a survey, evaluated its effectiveness, comparing student experiences with similar courses where inter-teaching was not used. The 46 responses were found to be strongly in favour of inter-teaching compared to the lecture model. Students indicated they were more likely to complete the pre-reading for class, with 80% of students strongly agreeing that they read more carefully when they had an inter-teaching task (Slagter & Scribner, 2014).

While there are few inter-teaching research studies, and several by the same research team, they do provide evidence of its success in improving academic grades, and in many of the studies, students preferred this method of teaching because they were involved constructively in their learning. However, of all the articles reviewed, none provided the theoretical underpinning of why inter-teaching was so effective compared to the traditional lecture model. An important contribution of this study to the literature was that student engagement, in an inter-teaching class, is considered a primary reason for inter-teaching effectiveness. In the next section, Deutsch's theories are discussed to understand the complexity of student engagement and how student performance is enhanced. Finn's (1989) theory of participation-identification is also considered influential in understanding recent conceptualisations of engagement, according to Appleton, Christenson, & Furlong (2008). Lastly, Astin (1984), through his theory of involvement, consistently argued that time on task, through involvement with other students, is positively correlated with cognitive development (Harper & Quaye, 2009).

What is evident from the literature of student engagement is that there is not one theoretical framework; rather it is a multi-definitional meta-construct that depends upon the context to which it is applied (Appleton et al., 2008). For a

theoretical explanation of engagement in the classroom, the seminal work of Deutsch (1949a, 1949b) may provide answers through his theory of cooperation and competition. Even though it is not found in the student engagement literature, it is argued that Deutsch's (1949a, 1949b) theory of cooperation and competition contributes to the foundational understanding of how students engage. Deutsch (1949b) describes how student groups in classroom settings interrelate to achieve greater outcomes than they could alone. Deutsch's (1949a, 1949b) theories are critical to understanding the cognitive acceleration that establishes a successful student engagement setting. Deutsch's (1949a) research underlined the importance of understanding the psychological and interpersonal relationships of individuals, in a group and the varying tensions within a group, in order to achieve or not to achieve their goals. He developed a series of hypotheses which linked small group functioning with cooperation and competition and examined "how the tension systems of different people may be interrelated" in order to achieve their common objectives (cited in Johnson, 2003, p. 935). Deutsch (1949a) described a cooperative relationship where the "individuals who are exposed to the cooperative social situation will perceive themselves to be promotively<sup>2</sup> interdependent (in relation to other individuals composing their group) with respect to goals" (p. 138). Deutsch (1949a) postulated that under circumstances of "promotively interdependence goals" (cooperation), X obtains his goal only if other members of the group, say A, B, C, etc., obtain theirs.

In contrast, Deutsch (1949a, 1949b, 2003) viewed competitive behaviour by individuals as not contributing to successful inter-group relationships. In fact, competitive behaviour driven by individual egocentric goals is more important than common goals where the individual is driven by the personal or self-desire to win. In this group situation, only one individual/ party can be successful. In summary, cooperation produces effective communication, forthcoming discussions which are organised and productive, and a willingness to strengthen the power and collaboration of the other members (Deutsch, 2003). Deutsch (1949b) found that in his study of cooperative behaviour that productivity was superior, group-centredness was enhanced, and group feeling was better, when compared to students in the competitive group. Further, cooperative students were affected by the ideas of the other members more than group members competing against each other and were statistically significant at 0.001 with a mean difference of +.78 (Deutsch, 1949b). The evidence from several experiments between cooperative and competitive groups was striking. Discussions of the cooperative group were more insightful, detailed and productive when compared to the competitive groups, according to Deutsch (1949b). Understanding Deutsch's theories assists in explaining why and how student engagement makes inter-teaching so effective.

David Johnson, a student of Deutsch, together with his brother Roger, has extensively researched cooperation and competition theory in the classroom for the last four decades (Johnson & Johnson, 1974, 1988, 1998, 1999, 2009; Johnson, Johnson, & Smith, 2014). Johnson and Johnson (1989) conducted a meta-analysis that compared cooperation, competition and individual learning pedagogies from

1988 to 1989 (185 studies). Their findings indicated that cooperation learning strategies<sup>3</sup> in the classroom were more successful in academic achievement, as compared to competitive and individual learning strategies. The statistical analysis details of their meta-analysis of all studies found that the average person engaged in cooperative behaviour performed at about "two thirds of one standard deviation above the average person operating within a competitive situation; effect size = 0.67 or individualistic effect size = 0.64" (Johnson, 2003, p. 936). Johnson (2003) argues that a cooperative experience facilitates more insight into and use of higher level cognitive and moral reasoning strategies than do competitive "(effect size = 0.93) or individualistic (effect size = 0.97) efforts" (pp. 936-938).

Cooperation and competition theory is supported by a clear theoretical foundation and, through rigorous research studies, it has been validated and confirmed in the educational setting (Johnson & Johnson, 2009; Johnson et al., 2014).

The theory of student involvement developed by Astin (1984) is strongly associated with engagement and frequently cited in the higher education sphere (Harper & Quaye, 2009a). Astin (1984) stated "that student involvement was the amount of physical and psychological energy that the student devotes to the academic experience" (p. 518). His theory closely resembles the cooperation segment of Deutsch's theory, in that, student involvement entails the individual investing their knowledge and emotional energy in other students. Astin (1977) conducted a longitudinal study collecting data on more than 200,000 students which examined 80 student involvement measures and why students drop out. He observed that most student involvement activities correlated with positive changes in the student perspective and understanding. He was of the opinion from the results of these extensive studies that when students are actively engaged their cognitive development is improved in comparison to other methods of teaching. Astin (1984) maintained that the lecture model (subject-matter theory) assigned "students a passive role in the learning process" and stated that it was unacceptable for academics to continue to adhere to a teaching model that disadvantages most students (p. 520).

Astin's theory aligns with the student discussion component of Boyce and Hineline's (2002) engagement inter-teaching model. Inter-teaching has proved that where there is an increase in student involvement, through peer interactions, students' academic performance is better (Boyce & Hineline, 2002; Saville et al., 2006; Kienhuis, 2013).

Finn developed the participation-identification theory from his influential research into student dropout prevention. Finn (1989, 1993) contended that teaching pedagogies that maximise student participation in their learning were essential to minimise student disengagement. Finn (1993) conducted two research projects encompassing 15,737

<sup>2</sup>A situation in which all members of a team can achieve their goals (Oxford Dictionary of Psychology, 2015).

<sup>3</sup>Cooperative learning is the instructional use of small groups so that students work together to maximise their own and each other's learning" (Johnson et al., 2009, p. 365).

public school students in order to understand students at risk in secondary education. Part one of his study was concerned with the correlation between student engagement and academic success. Finn focussed on participation, in what he termed the operational component of behaviour known as engagement and observed that engagement in the classroom allowed students to develop their social and cognitive abilities and to have positive academic outcomes.

It is argued that inter-dependent groups in which students participate with each other working cooperatively, enhanced their cognition abilities, more than if they were studying alone. The influential research of Finn identified that students participating in the classroom improved student academic performance. Participation and involvement are considered antecedents to student engagement and their cognitive development and may explain why inter-teaching is so effective in its primary function of engaging students in the classroom (Jarvis, Halvorson, Sadeque, & Johnston, 2014). Inter-teaching adopts behavioural techniques to model student characteristics of involvement, participation, and learning from their peers as an enhanced learning technique with arguably better outcomes than the passive listening-lecture model. It is argued that the theoretical foundation of student engagement, explained through the works of Deutsch, Johnson and Johnson, Finn and Astin, drives the effectiveness of inter-teaching. It is this relatively simple phenomenon of students taking responsibility for participating in the learning process through their own learning, and from learning with each other, that is the essence of student engagement.

This summary of prior research into inter-teaching effectiveness and theories of engagement supports the conclusion that inter-teaching outperforms the lecture model both in terms of academic results and student involvement, participation and engagement. Notwithstanding these positive results, shortcomings about inter-teaching studies have also been highlighted in the literature. Firstly, the empirical evidence is rather limited with many studies related to psychology courses, which used relatively small, convenience samples (Saville, Cox, O'Brien, & Vanderveldt, 2011). Accordingly, Saville et al. (2011) suggested that "researchers should test inter-teaching across a range of disciplines to determine if similar positive outcomes were warranted" (p. 160). Secondly, with a few exceptions, inter-teaching studies are confined to tertiary institutions in the US. Thirdly, there is only one known study of inter-teaching in a developing country (Wheaton, O'Connell, & Yapa, 2016).

## Research Questions And Hypotheses

The prior research emphasises an urgent need to modernise accounting education. There is a pressing need for research into engaging pedagogies, such as inter-teaching, which is an effective behavioural teaching method, because it is focussed on increased academic engagement, learning, and satisfaction in the classroom.

The hypothesis compared final exam grade marks between both teaching models. Reference is made to inter-teaching

research that has found improvement in student grades in psychology courses (Saville et al., 2014). However, there are no known studies of pedagogies that specifically target academic performance improvement in accounting courses for Vietnamese students. To address this research gap, the final exam grade performance, under both methods of teaching, were examined. The null and alternative hypotheses are written, as follows: If  $t_1$  = the tests following the lecture mode of instruction and  $t_2$  = the tests following the inter-teaching mode of instruction for the Management Accounting Business (MAB) population, then the interest is in testing the null hypothesis:

$$H_0: t_1 \geq t_2$$

against the alternative hypothesis:

$$H_1: t_1 < t_2 \text{ or}$$

$H_0$ : *Inter-teaching does not achieve improved pass rates, compared to the traditional lecture model experience for undergraduate accounting students taking the MAB course.*

*Or the alternative hypothesis:*

$H_1$ : *Inter-teaching achieves improved pass rates, when compared to the lecture model, for undergraduate accounting students taking the MBA course.*

## Research Method

### Procedures

Data was collected on academic performance (grades from two final exams conducted from different MAB cohorts across two semesters). One group of grades collected related to groups subject to the lecture mode. The second group of grades collected related to groups subject to inter-teaching. Table 1 summarises the procedure of this within-subjects.

	Semester 1	Semester 2
Teaching mode	Lecture model (LM) Treatment 1(TM1)	Inter-teaching model (IT) Treatment 2 (TM2)
Final Exam	Students complete final exam	Student complete final exam

Table 1: Research procedures.

Table 1 illustrates the research procedures where students are exposed to the lecture model (LM), testing the effect TM1 (treatment 1) at the end of semester 1, 2015. Then, a second cohort of students were exposed to a different teaching method, inter-teaching (IT) and tested again TM2 (treatment 2). The student individual exam scores were categorised and coded to avoid identifying individual students and allowing anonymity, as a condition of ethics approval.

### Participants and Data Collection

Primary data was collected from final exam results for MAB for two semesters in 2015. The population for comparison of final grade examinations included all undergraduate

students who took the final exam for semesters 1 (n=244) and 2 (n=147). The two instructors used were experienced academics having taught in the accounting program for several years. The same teachers were used for both semesters. That is, they taught the lecture model in semester 1 and the inter-teaching model in semester 2. More importantly, they had both received training in inter-teaching because it is very different to the lecture model. The training consisted of workshops which were conducted by staff with experience in inter-teaching.

Demographics	Frequency		Percentage (%)	
	1	2	1	2
Semester				
Gender				
Male	137	64	56%	42%
Female	107	90	44%	58%
Age Profile				
18-25	230	145	93%	94%
>25	14	9	7%	6%
Grade Point Average (MAB all students)				
	2.13	2.12		
Grade Point Average (MAB female students)				
	2.35	2.30		
Grade Point Average (MAB male students)				
	1.97	1.86		
Bachelor of Business Accountancy	26	16	14%	10%
Bachelor of Business Economics and Finance	63	34	22%	22%
Bachelor of Commerce	145	96	58%	62%
Others	10	8	6%	6%

Table 2: Demographic profile of students

### Demographics of respondents

Table 2 described the demographics of students enrolled in the MAB accounting course for semester 1 and 2.

All students in the study for semester 1 and 2 were 18 years or older with the preponderance of students less than 26 years of age (S1 93%; S2 94%). All students were business students with the majority studying for the Bachelor of Commerce Program (S1 58%; S2 62%) and Bachelor of Business Economics and Finance Program (S1 22%; S2 22%). The students are 95% Vietnamese nationals who are considered homogeneous and culturally similar (with the remaining 5% students being Koreans, Japanese and French). The grade point average of all students enrolled in the accounting course is consistent across the two cohorts ruling out the probability that the differences found are due to variances in the quality of the semester 1 students versus the quality of semester 2 students. However, there was a difference in gender between semester 1 and 2 with semester 2 showing predominately less enrolled male students. There was also a material difference in female and male grade point averages for both semesters. To rule out causal bias arising from these factors, 2 by 2 factorial ANOVA analysis comparing the means across the two cohorts was conducted. You will also note that the population for comparison of final grade examinations included all undergraduate students who took the final exam for semesters 1 (n=172) and 2 (n=147) is different to that outlined in Table 2, this variance is due to some students not sitting the respective final exams.

### Data Analysis And Findings

The independent variables are the lecture and inter-teaching methods of teaching used in the respective classrooms. The dependent variable is the final grade marks.

An Independent Samples t-test (one-tailed) compared the lecture model final test grades from semester 1 with the final test grades from inter-teaching for semester 2. The tests were conducted to verify (or otherwise) the hypothesis H1 that inter-teaching improves grade performance of MAB accounting students. Assumptions of Independent Sample t-test such as normality of data distribution, the variance of the two treatments and cases independent of each other were all satisfied (Merola, 2015).

Grades	Lecture model	Inter-teaching
N	244	147
Mean	54.40	78.72
Median	58.00	87.50
Std. Dev.	23.36	20.62
Skewness	-.442	-1.365
Kurtosis	-.784	1.399

Table 3: Independent Sample t-test for lecture model and inter-teaching model

Table 3 provides the descriptive statistics for the lecture and inter-teaching modes.

It should be noted that the population size for final grade exams is larger for semester 1, but this did not impact the descriptive or Independent Sample t-test findings. It should also be highlighted that both population sizes for final grade analysis are smaller than the number of students enrolled because some students enrolled did not sit the final exams in Semester 1 and 10 students did not sit the exam in Semester 2.

Table 3 shows that the mean for the lecture model 54.40 is less than the mean for inter-teaching of 78.72. T test results indicated that the mean difference between scores of the lecture and inter-teaching mode were statistically significant ( $t = 9.483$ ,  $p\text{-value} < 0.05$ ); therefore,  $H_1$  is supported.

### Discussion and Conclusions

This study evaluated the effectiveness of the lecture model versus an inter-teaching delivery method for an accounting course presented to first-year under-graduates from a developing country, namely, Vietnam. Results showed that inter-teaching appeared to have a strong positive effect on students' final exam grades. Our findings provide the first known direct comparison of the lecture model versus inter-teaching in which students were subjected to the same instructors, course materials, lectures, and exams in a Vietnamese setting.

The interest in this study was to compare the grade outcomes with the findings espoused by Saville et al. (2005), Saville et al. (2006) and Saville et al. (2014). Findings support earlier works by Saville et al. (2005), Saville et al. (2006) and Saville et al. (2014) that inter-teaching can have a highly positive impact on student performance. The studies reviewed



compared grade scores which confirmed inter-teaching grades outperformed the lecture model of instruction. Further, a recent unpublished study by one of the authors (Wheaton et al., 2016) established from student survey responses that students perceived discussions, working with their peers and student feedback were improved in an inter-teaching session. Consistent with these findings, Kienhus (2013) found students commented on better engagement associated with reading, pre-class preparation and class discussion where inter-teaching was adopted (Kienhus, 2013).

Student comments from the post-test survey showed they preferred inter-teaching because they found "the opinions of their peers offered a different perspective and the emphasis on self-study gave them a better understanding of the content" (Kienhus, 2013, p.15). Students reported improved satisfaction, compared to the lecture model in three of the five courses, with "students responses (ranging from 56.0% to 76%) describing that they 'somewhat more engaged' or 'much more engaged' inter-teaching sessions" (Kienhuis, 2013, p. 15).

Findings show that inter-teaching improves understanding and retention of complex accounting information. Students are involved on a much deeper level than is possible in the lecture model scenario (Saville et al., 2014). The underlying strength of inter-teaching in the classroom is the cognitive improvement of each student, as demonstrated through their superior grade performance. Findings indicate that accounting education should move towards inter-teaching, yet, there appears little impetus from within academia to adopt and implement research findings concerning pedagogical improvements (Wygol et al., 2014; O'Connell et al., 2015). Wygol et al. (2014) noted that the accounting fraternity has actively promoted teaching and curriculum reform; however, they found little evidence of implementing teaching effectiveness in the student learning space.

This study challenges the 'status quo', advocating student learning practises in accounting education that develop deeper learning. The application of the appropriate teaching method is a critical condition of student academic performance as demonstrated in this study. It found that the academic performance of students is enhanced when students are prepared, involved and participating in class discussion groups. These are the components of inter-teaching, considered essential for the effectiveness of student-centred learning and enhanced performance of students.

This study makes important contributions to accounting education literature. Firstly, a major contribution to the literature is that inter-teaching represents a formidable substitute to the lecture model for teaching accounting courses. Largely because it is an all-encompassing teaching model as this study found, inter-teaching engages students from preparation, being involved in small class discussion groups and getting feedback from every lesson. These are the components considered essential to being engaged in the classroom, and are the mechanisms that drive the effectiveness of inter-teaching and academic performance (Boyce & Hineline, 2002). What also became apparent from this study is that the application of the correct teaching

method is a critical condition of student engagement. It is argued the theoretical foundation of student engagement, explained through the works of Deutsch, Johnson, and Johnson, Finn and Astin, drives the effectiveness of inter-teaching. It is this relatively simple phenomenon of students taking responsibility for participating in the learning process through their own learning, and from learning with each other, that is the essence of student engagement.

There are some limitations to widespread adoption of inter-teaching. Implementing inter-teaching as an alternative teaching model for accounting schools on a large scale may be more labour intensive compared to the lecture model of instruction because of the preparation. Considerably more preparation is required of the academic for the inter-teaching session, for example, constructing preparation guides involves considerable developmental time. Further, explaining the changes to lecturers and students in the process of conversion to inter-teaching takes time and patience. Kienhus (2013) reported that lecturers found it a challenge to adapt new learning materials and provide clarification each week. The inter-teaching studies reviewed in this paper did not exceed 35 students in class size. However, inter-teaching procedures for educating a large number of students per class ( $n > 100$ ) may be possible (Jarvis et al., 2014). Other limitations are that several of the studies are from the same primary author (Saville et al., 2005; Saville et al., 2006; Saville & Zinn, 2009; Saville et al., 2011; Saville et al., 2012; Saville et al., 2014), and for that reason may not meet the criteria for evidence-based research, according to Sturmeijer et al. (2015). Future independent replications like this study might change that conclusion. Integrity of this study was paramount, staff training and inter-teaching procedures closely followed the Boyce and Hineline (2002) model. The research method may have restricted conclusions about fundamental relationships to this study. It is suggested that comparisons of teaching models should be conducted with randomly chosen students to allow more meaningful conclusions for the wider population of MAB accounting students. The limited sample of students confined to the Vietnam setting may limit wider conclusions.

Turning to avenues for future research, more investigation is needed to investigate the 'large class approach' for inter-teaching accounting courses. Additionally, inter-teaching research should be conducted in advanced courses in other business disciplines and examine more variables. For example, variables that could influence the effectiveness of inter-teaching include learning styles and motivation. At the cognitive level, trans-active memory can stimulate group members with informed knowledge to a greater degree than an individual could access on their own, according to Wegner, Giuliano, and Hertel (1985). It would be beneficial to focus future research at the cognitive level. Deutsch (1949) and Biggs (2012), in their investigations of student learning, all cite better retention and faster conception of problem solving when students work together in groups. The trans-active memory studies in which group members are stimulated with informed knowledge have shown that results are more positive than those of an individual studying alone, warrant further research.

In conclusion, this article has presented inter-teaching, an engagement teaching model, as a preferred method of instructing accounting students. The overall conclusion is that inter-teaching has significantly contributed to improvement in student academic results. Accounting education change has been an ongoing agenda item that has been very slow to embrace reform. Academics have a responsibility to begin the transition to drive change and incorporate student-centred models like inter-teaching. Contemporary employers require employees who will be innovative and questioning. It is therefore imperative that the education of accounting students moves from the mere acquisition of knowledge to innovative teaching models like inter-teaching, so that students have the ability to conceptually shape their own knowledge, a critical factor for the success of their professional accounting career today.

## References

- Albrecht, W. S., & Sack, R. J. (2000). *Accounting education: Charting the course through a perilous future*. Sarasota, FL: American Accounting Association, Anguish, John Wiley & Sons Australia Ltd.
- American Accounting Association, Committee on the Future Structure, Content and Scope of Accounting Education (the Bedford Committee). (1986). Future accounting education: Preparing for the expanding profession. *Issues in Accounting Education, 1*, 168–195.
- Appleton, J. J., Christenson, S. L., & Furlong, M. J. (2008). Student engagement with school: Critical conceptual and methodological issues of the construct. *Psychology in the Schools, 45*(5), 369-386.
- Astin, A. W. (1977). *Four critical years*. San Francisco, CA: Jossey-Bass.
- Astin, A. W. (1984). Student involvement: A development theory for higher education. *Journal of College Student Personnel, 25*(4), 297-308.
- Biggs, J. B. (1979). Individual differences in study processes and the quality of learning outcomes. *Higher Education, 8*(4), 381-394.
- Biggs, J. B. (1989). Students' approaches to learning in Anglo-Chinese schools. *Educational Research Journal, 4*, 8-17.
- Biggs, J. B. (1999). *Teaching for quality learning at university*. Maidenhead, England: SRHE & Open University Press.
- Biggs, J. B. (2012). What the student does: Teaching for enhanced learning. *Higher Education Research & Development, 31*(1), 39-55. doi: 10.1080/07294360.2012.642839
- Biggs, J. B. (2014). Constructive alignment in university teaching. *HERDSA Review of Higher Education, 1*, 5-22.
- Binder, C., & Watkins, C. L. (2013). Precision teaching and direct instruction: Measurably superior instructional technology in schools. *Performance Improvement Quarterly, 26*(2), 73-115. doi:10.1002/piq.21145
- Binder, C., & Watkins, C. L. (1990). Precision teaching and direct instruction: Measurably superior instructional technology in schools. *Performance Improvement Quarterly, 3*(4), 74-96.
- Booth, P., Luckett, P., & Mladenovic, R. (1999). The quality of learning in accounting education: The impact of approaches to learning on academic performance. *Accounting Education: An International Journal, 8*(4), 277-300.
- Bowman-Perrott, L., Davis, H., Vannest, K., Williams, L., Greenwood, C., & Parker, R. (2013). Academic benefits of peer tutoring: A meta-analytic review of single-case research. *School Psychology Review, 42*(1), 39-55.
- Boyce, T. E., & Hineline, P. N. (2002). Interteaching: A strategy for enhancing the user-friendliness of behavioral arrangements in the college classroom. *The Behavior Analyst, 25*, 215–226.
- Buskist, W., Cush, D., & DeGrandpre, R. J. (1991). The life and times of PSI. *Journal of Behavioral Education, 1*, 215–234.
- Capellatto, G. (2010). *Challenges facing accounting education in Australia*. AFAANZ, Melbourne. Retrieved from <http://afaanz.org/>.
- Carr, S., & Mathews, M. R. (2004). Accounting curriculum change and iterative programme development: a case study. *Accounting Education, 1*(3), 91-116. doi:10.1080/0963928042000310814 B
- Chabrak, N., & Craig, R. (2013). Student imaginings, cognitive dissonance and critical thinking. *Critical Perspectives on Accounting, 24*(2), 91-104.
- Coetzee, S. A., & Schmulian, A. (2012). A critical analysis of the pedagogical approach employed in an introductory course to IFRS. *Issues in Accounting Education, 27*(1), 83-100. Retrieved from <http://search.proquest.com/docview/940912383?accountid=10499>
- de Lange, P., & Watty, K. (2011). Accounting education at a crossroad in 2010 and challenges facing accounting education in Australia. *Accounting Education: An International Journal, 20*(6), 625-630, doi: 10.1080/09639284.2011.637458 B
- Deutsch, M. (1949a). A theory of co-operation and competition. *Human Relations, 2*(2), 129-152.
- Deutsch, M. (1949b). An experimental study of the effects of co-operation and competition upon group processes. *Human Relations, 2*(3), 199-231. doi:10.1177/001872674900200301
- Durantini, G., Dehais, F., & Delorme, A. (2015). Characterization of mind wandering using fNIRS. *Frontiers in Systems Neuroscience, 9*, 45. <http://doi.org/10.3389/fnsys.2015.00045>
- Evans, E., Burritt, R., & Guthrie, J. (Eds.). (2010). *Accounting education at a crossroad in 2010*. Institute of Chartered

Accountants in Australia.

Foss, K. A., Foss, S. K., Paynton, S., & Hahn, L. (2014). Increasing college retention with a personalized system of instruction: A case study. *Journal of Case Studies in Education*, 5, 1-20.

Goto, K, & Schneider J. (2009). Interteaching: An innovative approach to facilitate university student learning in the field of nutrition. *Journal of Nutrition Education and Behaviour* 41(4), 303-4.

Griffin, M. M., & Griffin, B. W. (1998). An investigation of the effects of reciprocal peer tutoring on achievement, self-efficacy, and test anxiety. *Contemporary Educational Psychology*, 23, 298-311.

Guthrie, J., E. Evans, & R. Burritt (2014). Australian accounting academics: Challenges and possibilities. *Meditari Accountancy Research*, 22(1), 20-37.

International Accounting Education Standards Board. (2015) *Meeting future expectations of professional competence: A consultation on the IAESB's future strategy and priorities*.

Jackling, B. (2005). Perceptions of the learning context and learning approaches: Implications for quality learning outcomes in accounting. *Accounting Education: An International Journal*, 14(3), 271-91.

Jackling, B., de Lange, P. A., & Natoli, R. (2012). Transitioning to IFRS in Australian classrooms: Impact on teaching approaches. *Issues in Accounting Education*, 28(2), 263-275.

Johnson, D. W., & Johnson, R. (1974). Instructional goal structure: Cooperative, competitive, or individualistic. *Review of Educational Research*, 44, 213-240.

Johnson, D. W., & Johnson, R. (1989). *Cooperation and competition: Theory and research*. Edina, MN: Interaction Book Company.

Johnson, D. W., & Johnson, R. (1992). Positive interdependence: Key to effective cooperation. In R. Hertz-Lazarowitz & N. Miller (Eds.), *Interaction in cooperative groups: The theoretical anatomy of group learning*. New York, NY: Cambridge University Press.

Johnson, D. W., & Johnson, R. (1997). *Learning to lead teams: Developing leadership skills*. Edina, MN: Interaction Book Company.

Johnson, D. W., & Johnson, R. (1999). *Learning together and alone: Cooperative, competitive, and individualistic learning* (5th Ed.). Boston, MA: Allyn & Bacon.

Johnson, D. W., & Johnson, R. T. (2005). New developments in social interdependence theory. *Psychological Monographs*, 131(4), 285-358.

Johnson, D. W., & Johnson, R. T. (2008). Social interdependence, moral character, and moral education. In J. Nucci & D. Narvaez (Eds.), *Handbook on moral and character education*. Mahwah, NJ: Erlbaum Associates.

Johnson, D. W., & Johnson, R. T. (2009). An educational psychology success story: Social interdependence theory and cooperative learning. *Educational Researcher*, 38(5), 365-379.

Johnson, D. W., Johnson, R. T., & Smith, K. (2014). Cooperative learning: Improving university instruction by basing practice on validated theory. *Journal on Excellence in College Teaching*, 25(4), 1-26.

Keller, F. (1968). Good-bye, teacher. *Journal of Applied Behavior Analysis*, 1(1), 78-89.

Kienhuis, M. (2013). Interteaching: Dissemination and evaluation across three RMIT colleges, health Sciences, SHE, final report.

Jarvis, W., Halvorson, W., Sadeque, S., & Johnston, S. (2014). A large class engagement (LCE) model based on service-dominant logic (SDL) and flipped classrooms. *Education Research and Perspectives*, 41(1), 1-24.

Lindsley, O. R. (1964). Direct measurement and prosthesis of retarded behavior. *Journal of Education*, 147, 62-81.

Mathews, R., Brown, P., & Jackson, M. (1990). *Accounting in higher education: Report of the review of the accounting discipline in higher education*. Canberra, Australia: Australian Government Publishing Service.

McLaughlin, J. E., Roth, M. S., & Mumper, R. (2014). The flipped classroom: A course redesign to foster learning and engagement in a health professions school. *Academic Medicine*, 89(2), 236-243.

Merola, G. (2015). *Critical content expert and statistician*. RMIT University Vietnam.

Mladenovic, R. (2000). An investigation into ways of challenging introductory accounting students' negative perceptions of accounting. *Accounting Education: An International Journal*, 9(2), 135-155.

O'Connell, B., Carnegie, G, Carter, A., Helliari, C., Watty, K., Hancock, P., & de Lange P. (2015). *Shaping the future of accounting in business education in Australia, Final Report*. CPA Australia, Melbourne, Victoria.

Paisey, C., & Paisey, N. J. (2001). *A comparative study of undergraduate and professional education in the professions of accountancy, law and architecture*. Edinburgh, Scotland: The Institute of Chartered Accountants of Scotland.

Palm, C., & Bisman, J. (2010). Benchmarking introductory accounting curricula: Experience from Australia. *Accounting Education*, 19(1/2), 179-201. doi: 10.1080/09639280903254959

Pathways Commission. (2012). *Charting a national strategy for the next generation of accountants*. Retrieved from [http://commons.aahq.org/files/0b14318188/Pathways\\_Commission\\_Final\\_Report\\_Complete.pdf](http://commons.aahq.org/files/0b14318188/Pathways_Commission_Final_Report_Complete.pdf)

- Pigott, H. E., Fantuzzo, J. W., & Clement, P. W. (1986). The effects of reciprocal peer tutoring and group contingencies on the academic performance of elementary school children. *Journal of Applied Behavior Analysis, 19*(1), 93–98. doi:10.1901/jaba.1986.19-93
- Ravenscroft, S., & Williams, P. F. (2004). Considering accounting education in the USA post-Enron. *Accounting Education: An International Journal, 13*(1), 7–23.
- Risko, E. F., Anderson, N., Sarwal, A., Engelhardt, M., & Kingstone, A. (2012). Everyday attention: Variation in mind wandering and memory in a lecture. *Applied Cognitive Psychology, 26*(2), 234–242. doi:10.1002/acp.1814
- Roscoe, R. D., & Chi, M. T. H. (2007). Understanding tutor learning: Knowledge-building and knowledge-telling in peer tutors' explanations and questions. *Review of Educational Research, 77*(4), 534–574.
- Rochford, L., & Borchert, P. S. (2011). Assessing higher level learning: Developing rubrics for case analysis. *Journal of Education for Business, 86*(5), 258–265.
- Rutherford, B. A. (2011). Accounting research and accounting policy: What kind of gap? *Accounting in Europe, 8*(2) 141–154.
- Saville, B. K. (2011). Interteaching: A behavior-analytic approach to promoting student engagement. *Promoting Student Engagement, 1*, 128–133.
- Saville, B. K., Bureau, A., Eckenrode, C., Fullerton, A., Herbert, R., Maley, M., & Zombakis, J. (2014). Interteaching and lecture: A comparison of long-term recognition memory. *Teaching of Psychology, 41*, 325–329. doi:10.1177/0098628314549704
- Saville, B. K., Cox, T., O'Brien, S., & Vanderveldt, A. (2011). Interteaching: The impact of lectures on student performance. *Journal of Behavioural Analysis, 44*(4), 937–941.
- Saville, B. K., Pope, D., Truelove, J., & Williams, J. (2012). The relation between GPA and exam performance during interteaching and lecture. *Behavior Analyst Today, 13*(3/4), 27–31.
- Saville, B. K., & Zinn, T. E. (2009). Interteaching: The effects of quality points on exam scores. *Journal of Applied Behavior Analysis, 42*(2), 369–74.
- Saville, B. K., Zinn, T. E., & Elliott, M. P. (2005). Interteaching versus traditional methods of instruction: A preliminary analysis. *Teaching of Psychology, 32*(3), 161–163. doi:10.1207/s15328023top3203\_6
- Saville, B. K., Zinn, T. E., Neef, N. A., Van Norman, R., & Ferreri, S. J. (2006). A comparison of interteaching and lecture in the college classroom. *Journal of Applied Behavior Analysis, 39*(1), 49–61.
- Saville, B. K., & Zinn, T. E. (2009). Interteaching: The effects of quality points on exam scores. *Journal of Applied Behavior Analysis, 42*(2), 369–374.
- Sidman, M. (1960). *Tactics of scientific research*. Boston, MA: Authors Cooperative, Inc. Publishers.
- Skinner, B. F. (1953). *Science and human behavior*. New York, NY: Macmillan.
- Skinner, B. F. (1968). *The technology of teaching*. Englewood Cliffs, NJ: Prentice-Hall.
- Slagter, T. H., & Scribner, D. L. (2014). Interteach and student engagement in political science. *Journal of Political Science Education, 10*(1), 81–92. doi: 10.1080/15512169.2013.835562
- Springer, C. W., & Borthick, A. F. (2007). Improving performance in accounting: Evidence for insisting on cognitive conflict tasks. *Issues in Accounting Education, 22*, 1–19.
- Sturme, P., Dalfen, S., & Fienup, D. M. (2015). Inter-teaching: A systematic review. *European Journal of Behavior Analysis, 16*(1), 121–130, doi: 10.1080/15021149.2015.1069655
- Thompson, J. (2009). *Changing chalk and talk: The reform of teaching methods in Vietnamese higher education*. The George Washington University.
- Tsui, M. (2010). Interteaching: Students as teachers in lower-division sociology courses. *Teaching Sociology, 38*(1), 28–34.
- Watty, K. (2007). Quality in accounting education and low English standards among overseas students: Is there a link? *People and Place, 15*(1), 22–29.
- Watty, K., de Lange, P., Carr, R., O'Connell, B., Howieson, B. & Jacobsen, B. (2013). Accounting students' feedback on feedback in Australian universities: They're less than impressed. *Accounting Education: An International Journal, 22*(5), 467–488. doi:10.1080/09639284.2013.823746
- Wegner, D. M., Giuliano, T., & Hertel, P. (1985). Cognitive interdependence in close relationships. In W. J. Ickes (Ed.), *Compatible and incompatible relationships* (pp. 253–276). New York, NY: Springer-Verlag.
- Wheaton, M., O'Connell, B., & Yapa, P. (2016). Inter-teaching: Improving the academic performance of auditing students in Vietnam. *Australasian Accounting, Business and Finance Journal, 10*(4), 3–16.
- Wygall, D. E., Watty, K., & Stout, D. E. (2014). Drivers of teaching effectiveness: Views from accounting educator exemplars in Australia. *Accounting Education: An International Journal, 23*(4), 322–342. doi: 10.1080/09639284.2014.930692
- Zayac, R. M., & Paulk, A. L. (2014). Interteaching: Its effects on exam scores in a compressed-schedule format. *Journal of the Scholarship of Teaching and Learning, 14*(1), 1–12. doi: 10.14434/josotl.v14i1.3649