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The Relations Between Teaching Strategies, Students' Engagement in Learning, and Teachers' Self-Concept

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Abstract: Good teaching strategies may not only engage students in learning but may also promote teachers' self-concept about teaching. The present study empirically investigated the contributions of four popular teaching strategies, namely, feedback, scaffolding, active learning, and collaborating, to students' engagement in learning and teachers' self-concept in teaching. The study adopted a quantitative design, which surveyed 208 Australian primary school teachers by using a five-point Likert-scale questionnaire. The structure of the questionnaire was first explored by an exploratory factor analysis (EFA) and then through a confirmatory factor analysis (CFA) in order to provide an account for validity. The results of correlations showed that all the four teaching strategies were positively associated with both students' engagement and teachers' self-concept. The results of the structural equation modelling found that the strength of these relations varied. While feedback, scaffolding, and active learning strategies all positively contributed to teachers' self-concept, collaborating neither significantly predicted students' engagement nor teachers' self-concept. Only scaffolding had a positive path to students' engagement, implying that scaffolding may be the best strategy among the four teaching strategies to engage primary students. The study suggested to teachers that they need to consider the age of learners when implementing teaching strategies.

Keywords: teaching strategies; teachers' self-concept; students' engagement in learning; primary school; feedback; scaffolding; active learning; collaborating

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1. Introduction

In 2015, United Nations has proposed the 2030 Agenda for Sustainable Development, outlining 17 Sustainable Development Goals, which are amongst the top agenda for all the United Nations members, being developed or developing countries [1]. Quality education is one of the Sustainable Development Goals. Although diverse definitions have been proposed for the quality education, a central point in education is to find effective ways to promote and fostering students' learning. Effective and productive instructional methods and strategies that teachers adopt have been noted as one of the major factors that can make the difference in student learning [2]. Good teaching strategies may not only able to engage students in learning but may also reinforce teachers' self-concept [3,4]. However, it is unknown as to how different teaching strategies contribute to students' engagement in learning and teachers' self-concept when they are considered together. This study attempted to empirically test the differential predictions of four popular teaching strategies: feedback, scaffolding, active learning, and collaborating–to teachers' self-concept and perceived students' engagement in learning in Australian urban and rural primary school settings. The findings will provide teachers with important information as to what strategies to employ for better students' engagement in learning and will enable teacher educators to focus on relevant teaching strategies in order to build the self-concept of potential and practicing teachers. The study adopted a quantitative design using a survey approach and examined the contributions from the four teaching strategies

to teachers' self-concept and students' engagement in learning through structural equation modelling (SEM).

Following this short introduction is the theoretical background, in which the four teaching strategies and the related studies are explained in detail. In addition, the constructs of teachers' self-concept and students' engagement in learning are also discussed. At the end of the theoretical background, the research questions and the hypotheses are raised followed by a methodology section. In the methodology section, specific information with regard to the participants, materials used in the study, data collection, and data analysis are explained. The results section is arranged according to the order of the research questions. Then, the results are discussed in relation to previous studies and the context of the present study. The paper ends with a section on limitations and implications of the study.

2. Theoretical Background

2.1. Teaching Strategies

Although there is no general agreement on the outcomes of schooling, students' learning "has been the most important outcome of schooling at any level" [3] (p. xix). As a result, in educational research, a central point is to find effective ways to promote and fostering students' learning. In order to enhance students' learning, we need to know the major sources which may contribute to differences in students' outcomes. Synthesising over 800 meta-studies covering more than 80 million students, [5] identified 252 effects impacting on students' learning achievement; of these effects, teacher factor was ranked on the top of the list. Teachers have been noted as "the major players in the education process" [6] (p. 22). Educational research worldwide with primary school teachers has empirically provided evidence that a variety of teacher factors could have noteworthy impacts on students' academic outcomes. They include teachers' competence, qualification, teaching experience, and professional development, all of which could affect students' academic outcomes [7].

Among teacher factors, quality teaching (i.e., effective and productive instructional methods and strategies that teachers adopt) is most central to students' learning processes and outcomes [2]. In a recent guidebook to improving students' academic achievement, a whole chapter is fully devoted to teaching strategies [3]. In a nutshell, teaching strategies can be broadly categorised into methods related to teaching programs, such as mastery learning, reciprocal teaching, and problem-based teaching. They may also be defined in terms of specific instructional methods, such as questioning or meta-cognitive strategies instruction. This latter category of specific methods was used in this study for the operationalisation of teaching strategies in our study. Among various teaching strategies, this study concentrates on providing feedback, scaffolding, promoting active learning, and encouraging collaborating, as they are closely related to the research context of this study and are often observed in Australian primary classrooms. Hence, they were considered to be appropriate for the purpose of investigation. Each of these specific strategies and related previous studies are described below.

2.1.1. Feedback

Feedback refers to the information provided by an agent with reference to one's performance [8]. In the educational context, feedback from teachers offers important information as to a student's performance [9]. As have been postulated by some researchers, effective feedback should not only inform students about correctness, but should also be part of the teaching process [10]. Therefore, valuable feedback needs to provide information on what has been understood and what aims to be understood [11].

There is an extensive research feedback as well as meta-analyses. In the general domain, [12] conducted a meta-analysis using 131 studies, which covered more than 12,000 participants, and reported an average effect of 0.38. There are more meta-analysis studies

conducted in the classroom settings—[8,9,13,14] all conducted meta-syntheses to examine the effects of feedback on students' learning.

In an early study of 12 meta-analysis studies, which included 196 studies with 6972 effect sizes, [9] found an average effect size of 0.79, suggesting that feedback is a powerful factor contributing to students' academic performance. Hattie and Timperley also observed different effects depending on the kind of information in the feedback. The feedback which contains information about performance and instruction on a task generated the highest effect sizes, whereas feedback which focuses only on praise or punishment yielded the lowest effect sizes [9].

Most recently, [8] conducted a meta-synthesis by incorporating the information content of the feedback as a moderator. On the basis of 435 studies, which covered 61,000 participants and 994 effect sizes, Wisniewski et al. adopted a random-effects model and only found an average effect size of 0.48 of feedback. The authors concluded that feedback should be treated as a complex construct with various forms, which also tended to produce differentiated effects on students learning. Furthermore, the study found that depending on nuanced categories of the learning outcomes, feedback also had different impacts, with a higher impact on cognitive and motor skills, and a lower impact on motivational and behavioural outcomes. Nevertheless, among all other teaching strategies, providing feedback is widely recognised as one of the most effective strategies in teaching [3]

2.1.2. Scaffolding

The instructional strategies of scaffolding to learners have ranked 16th out of the 252 influences by most recent synthesis [5]. This strategy is frequently applied in teaching students at all levels, from primary school to college [15]. Scaffolding provides support to learners from competent assistance to help them bridge the gap between their current abilities and their next learning phase [16]. Various forms of scaffolds have been applied in teaching, ranging from more concrete ends of teaching tools (e.g., pictures, prompts, and cue cards) to more abstract ends of teaching techniques (e.g., teacher modelling and using think-aloud) [16]. Scaffolding strategies has been applied in teaching various subjects, such as reading [17], mathematics [18], computational thinking [19], and physics [20].

One important feature of the application of scaffolding strategies is its temporary nature. In other words, the frequency of using scaffolds is likely to decrease as the learners' competence and abilities increase. Eventually, the learners will master the knowledge and skills and become independent and self-regulated learners [15]. In order to maximise its effects, scaffolding needs to be constrained to the specific students' zone of proximal development [21]. This means that if scaffolds are too higher above the students' current knowledge, abilities, and skills, the strategy may not necessarily generate beneficial outcomes [16]. Therefore, the way in which to skilfully manipulate and incorporate scaffolding appropriately in teaching and learning processes has remained a challenge faced by teachers. For primary school teachers, the mastery of scaffolding strategies is particularly challenging as young children need more guidance from teachers to build new ideas and concepts.

2.1.3. Active Learning

It is well known that the process of learning is active rather than passive, and it is students rather than teachers who play the role of the main agents in the learning process [22]. The underlying theory of active learning is from constructivism that learning often takes place when individuals connect new ideas and experiences to their existing knowledge and experiences to form new or enhanced understanding [23]. The power of active learning helps to create links between ideas and generate new knowledge through past knowledge and experience. In contrast, passive learning often leads to boredom and disconnection between learners and learning [24].

There are various models of active learning, such as Student-centred Active Learning Environment with Upside-down Pedagogies; Technology-enabled Active Learning; and Spaces to Transform, Interact, Learning, Engage [23]. Empirical studies have repeatedly shown that active learning promotes students' positive attitudes, gets students engaged in learning processes, develops critical thinking skills, leads to better retention of materials, yields better learning outcomes, and motivates students for further study [25,26]. [27] conducted a meta-analysis of 225 studies comparing active learning design versus exposition learning designs in the disciplines of science, technology, engineering, and mathematics. They found that students in the exposure learning design were 1.5 times more likely to fail than students in the active learning design. Furthermore, they found that on average, students' performance on both formative and normative assessments increased by approximately half a standard deviation when some active learning strategies were incorporated into the learning design. The strategy of promoting active learning has also gained increasing attention in recent years in the primary school settings.

2.1.4. Collaborating

Collaborating learning involves mutual engagement and the non-separable nature of the individual contributions to the task [28]. Collaborating strategies have a number of advantages over teacher-centred strategies. First, it satisfies students' demands of individual attention, which can be hardly achieved by having one teacher attending to a large number of students. Second, it may help teachers to manage classes effectively because the responsibility of instruction required on teachers is shared by students to some extent [29]. Through collaborating, students receive attention from others—this may increase level of engagement and participation in the learning process. During peer interaction, students serve as teachers of each other in order to clarify learning concepts, practice core learning tasks, and reinforce what has been instructed by the teacher.

Collaborating strategies may also be able to enhance students' academic outcomes and cognitive gains. For instance, in a meta-analysis of more than 80 intervention studies among elementary school students, [30] showed that peer-assisted methods outperformed traditional methods, and the methods improved students' academic performance in all content areas, producing an average effect size of 0.33. In another meta-analysis on the impact of small group collaboration on academic performance, [31] found evidence that small group learning could increase students' ability to transfer their learning to new contexts. Moreover, collaborating strategies have been found to increase students' affect, such as motivation, self-efficacy, self-esteem, self-concept, and social interaction skills [32].

Despite the general positive effects brought about by collaborating, not every kind of collaborating is effective [33]. Previous studies reported that in the processes of sharing and exchanging information when collaborating, students are often involved in off-topic discussions, particularly when collaborative groups are formed amongst friends [34–36]. For collaborating to work, research has suggested that students' interaction needs to be evaluated, student autonomy should be encouraged, and a guideline of structure of interaction should be offered [37]. Hence, the effectiveness of collaborating in leading to desirable learning outcomes may depend on the way collaborating is carried out in the classroom.

2.2. Teachers' Self-Concept

Self-concept is referred to as "a person's perception of himself...formed through his experience with his environment...and influenced especially by environmental reinforcements and significant others" [38] (p. 411). The construct of self-concept is central to the positive psychology movement [39]. In recognition of its importance, self-concept has been examined in diverse domains, including education, child development, mental health, exercise and sports sciences, and social sciences [40].

The construct of self-concept is considered as multidimensional and hierarchical in structure and domain specific [39]. In educational contexts, self-concept has been researched extensively among students. Research has consistently shown that students' positive academic self-concept can enhance their academic behaviour and performance [41]. The relationship between academic self-concept and performance is also found to be mutually reinforcing, known as a reciprocal effects model [42]. This means that gains in self-concept tend to result in gains in achievement and vice versa.

Compared to extensive research on students' academic self-concept, much less has been done in terms of teachers' self-concept. Developing a positive teachers' self-concept (i.e., teachers' valuing of their teaching and appreciation of teaching effectiveness) does not only bring about positive psychological wellbeing for teachers, but it can also serve as a mediating factor that produces desirable teaching outcomes, such as affecting students' learning behaviours and achievement in schools [43]. Moreover, considering the reciprocal effects between self-concept and behaviours in general, it is reasonable to expect that teachers' self-concept and their teaching behaviours are reciprocally influencing and reinforcing each other.

Research has consistently found that teachers' perceptions of what constitutes teaching affect how they approach teaching [44]. Teachers who perceive teaching primarily as knowledge transmitting tend to focus on the content of teaching. Therefore, they attempt to construct lessons which are easier for students to understand, known as information transfer/teacher-focused approaches. On the other hand, teachers who consider teaching as facilitating students' conceptual change in a content area are more likely to adopt an approach which concentrates on students' learning processes. As a result, these teachers try to put their effort in how to activate students' existing conceptions of subject matter, and in promoting knowledge reconstruction among students, envisaged as conceptual change/student-focused approaches [44].

In a primary school context, however, there is a paucity of research on the relationship between teachers' self-perception of teaching and the strategies they use in the classroom. In view of the gap in the literature, the present study focused on specific teaching strategies (i.e., feedback, scaffolding, active learning, and collaborating strategies) rather than general teaching approaches (e.g., student- and teacher-centred approaches), and examined predictions of each strategy to teachers' self-concept.

2.3. Students' Engagement in Learning

Although students' academic outcomes are valued as primary indicators of good schooling, there are more goals for schools and educators to strive for than assessment results [3]. Importantly, quality teaching should also target long-term outcomes and deeper levels of learning processes, including enjoyment and engagement in learning [6]. Like many constructs in educational research, there is no single definition of engagement in learning. Although past studies tend to concentrate only on one aspect of engagement [45], engagement in learning is a multi-dimensional construct, encompassing behavioural, emotional, and cognitive aspects [46].

Engagement matters for students' learning because there are multiple benefits for engaged learners, such as possessing a sense of belonging at schools, displaying higher abilities in critical thinking, positive personal development and dispositions, and achieving better academically [47]. Conducting a meta-analysis on 69 independent studies with 196,473 participants, [46] found positive correlations with moderate to strong effect size between overall students' engagement in learning and academic achievement. Through a moderator analysis, the authors reported that the relationship between students' engagement in learning and academic achievement was influenced by the method of reporting engagement, cultural value, and gender.

In order for students to be successfully engaged in learning rather than just spending time sitting in class, teachers need to provide clear learning intentions and to set up clear criteria for successful learning. For example, adopting a self-determination theory [48],

[49] found that teachers' autonomy support tended to enhance primary school students' engagement in schoolwork. In particular, two types of behaviours—"fostering relevance" and "suppressing criticism"—are the most salient factors. The results of this study indicate that students' engagement in learning is closely linked to teachers' teaching behaviours. However, the way in which different and specific instructional strategies may impact on students' engagement has not received much attention, and this constitutes the major aim of this study.

2.4. The Present Study

The present study surveyed primary school teachers on four specific teaching strategies they may adopt in teaching and examined how different types of teaching strategies may affect their perceptions of teaching competence in general (i.e., self-concept in teaching) and their students' engagement (as perceived by the teachers). Specifically, two research questions were asked:

- How do the four popular teaching strategies predict teachers' self-concept?
- How do the four popular teaching strategies predict students' engagement in learning?

From the literature, this study hypothesised that all the four teaching strategies (i.e., feedback, scaffolding, active learning, and collaborating) would be positively associated with perceived students' engagement in learning and teachers' self-concept. However, the contributions of these four strategies would be unlikely to be equally strong. Among the four strategies, feedback and scaffolding would probably have stronger influences on teachers' self-concept as both involve teachers as an active agent in the classroom. For students' engagement in learning, active learning and collaborating would have comparatively stronger impacts as students would play a more central role than teachers.

3. Materials and Methods

3.1. Participants

The sample was composed of 208 primary school teachers from 26 urban schools and 26 rural schools in the state of New South Wales, Australia. This study used the following procedure to select the schools: First, schools were categorised into urban and rural schools in terms of location. Second, each school was randomly assigned a number in the two categories of urban and rural schools. Then, schools with numbers between 1 and 26 in each category were picked up so that each category had an equal number of schools. After selection of schools, the recruitment advertisement was mailed to each school to invite voluntary participation of the study. Finally, 208 teachers returned written consent forms for agreeing to participate. The return rate was approximately 22.00%. Among these teachers, 45 (21.64%) were male and 163 (78.37%) were female. The teachers had a wide range of years of teaching experience, ranging from less than 1 year to 41 years. Around 50 (24.04%) of them had less than 5 years' teaching experience; 35 (16.83%) of them had taught for 6–10 years, 42 (20.19%) for 11–20 years, 57 (27.40%) for 21–30 years, and 24 (11.54%) for 31–41 years. The teachers' qualifications also varied, including Graduate Diploma in Education (33:15.87%), Bachelor of Education (72:34.62%), Bachelor of Teaching with a Diploma in Education (34:16.35%), double degree (17:8.17%), and other qualifications (52:25.00%). Even though the return rate was not high, the diversity with regard to the teaching experience and teachers' qualifications were sufficiently broad to be representative of the characteristics of the primary school teachers in the context of the research.

3.2. Research Design and Materials

The study was cross-sectional research that adopted a quantitative research design using a survey approach. The first section of the survey was designed to collect demographic information such as sex, years of teaching experience, and teaching qualifications.

The other 3 sections of the survey were scales about teaching strategies (15 items), teachers' self-concept (5 items), and perceptions of students' engagement in learning (4 items). These items were on a five-point Likert-scale, with anchors 1 to 5 representing "false, mostly false, sometimes false sometimes true, mostly true, true". The reliability and the validity of the scales are discussed in the data analysis section.

3.2.1. Teaching Strategies

Teaching strategy items ask teachers what teaching strategies they had used in their teaching. They were 15 items consisting of 4 scales: feedback, scaffolding, active learning, and collaborating. The feedback scale was about what teachers do to provide students with useful information about their schoolwork. An example is: "I use assessment results to provide feedback to students about what they need to do next to achieve an outcome." Scaffolding was a strategy of building upon what students have already to facilitate new learning. An example is: "I build on what my students known about reading to teach them new things". Active learning strategies encourage students to actively participate in class activities, for example: "I encourage students in my class to take part in class discussions." Collaborating is a scale that measured the use of activities involving peers working together, for example: "Students in my class are encouraged to find a classmate to help if they have difficulty in learning."

3.2.2. Teachers' Self-Concept

The self-concept scale was adapted from Self Description Questionnaire [50]. The five-item scale measured how teachers perceive their general teaching competence. An example is: "I am good at teaching most subjects that I teach."

3.2.3. Students' engagement in learning

Students' engagement as perceived by the teachers is measured by asking teachers about their perceptions of student involvement in learning. Derived from the literature, the items included representations of both students' behaviours and emotions, such as "work hard" and "enjoy doing the work". That is, the four-item scale asked about students' level of effort, good behaviours, and enjoyment in learning. An example is: "During lessons, my students work hard to get their work done."

3.3. Data Collection Procedure

We followed the procedures approved by the university's ethics committee. The printed questionnaires were mailed to 52 schools, half of which were located in urban areas and the other half were in rural areas. It was explained clearly that the survey was voluntary and anonymous, and only completed surveys with written informed consent were included in the analysis.

3.4. Data Analysis

The data analysis was conducted in 3 stages. The first stage explored potential scales in the questionnaire using principal axis factoring procedure with 50% of the cases randomly generated from the sample [51]. An oblique rotation was adopted following the suggestion that "Perhaps the best way to decide between orthogonal and oblique rotation is to request oblique rotation [e.g., direct oblimin or promax from SPSS] with the desired number of factors (see [52]) and look at the correlations among factors…" [53] (p. 646). To retain appropriate items, this study deleted the items with factor loadings less than 0.30 within a factor, as well as cross loading items, which load at 0.32 or higher on 2 or more factors [53]. This study also calculated coefficient H reliability—a measure of maximal reliability, which is a more appropriate measure of the scale's reliability, as the factor loadings reflect that each item contributes different amounts of information to the overall scale score [54–57]. The EFA and reliability analysis allowed for the different teaching strategies

scales, teachers' self-concept, and students' engagement of learning to be represented by a set of observed scale scores, and thus they were able to show evidence of construct validity through scoring inferences to a certain extent [58].

Second, we conducted confirmatory factor analysis (CFA) with 50% of the cases randomly generated in order to determine if the theoretical structure of the latent constructs provided a good fit to the observed data, which provided further evidence to the construct validity. The third stage performed an SEM using the whole sample, with paths from 4 teaching strategies as predictors (feedback, scaffolding, active learning, and collaborating) for 2 outcome variables (teachers' self-concept and students' engagement in learning) in Mplus 7.

We followed general procedures for conducting CFA and SEM [59,60]. As values of chi-squared statistics are sensitive to sample size, the goodness-of-fit statistics were used as primary indices for the CFA and model evaluation; however, the chi-squared test statistics were also reported. We used the Tucker–Lewis Index (TLI; [61]), the Comparative Fit Index (CFI; [62]), and the root mean square error of approximation (RMSEA; [63]) as our primary goodness-of-fit statistics. Values of TLI and CFI range from 0.00 to 1.00, with values greater than 0.90 as an acceptable fit to the data [64]. In terms of the RMSEA, according to [63], a value of 0.06 is indicative of a good fit between the hypothesised model and the observed data, values between 0.80 and 0.10 suggest a mediocre fit, and values greater than 0.10 indicate a poor fit [63,64].

Researchers have proposed a number of criteria to be met for a model to be accepted [60,63]. First, each scale should achieve acceptable reliability, with Cronbach's coefficient alpha of about 0.70. Second, factor loadings for the items on the corresponding scale should be greater than 0.30. Third, latent variables in the model should be distinguished from each other, meaning that correlations among them should not be too high (r should be lower than 0.90). Last, the model fit should be reasonable (the TLI and CFI should be above 0.90, and the RMSEA should be lower than 0.08).

4. Results

4.1. Results of EFA, CFA, and Correlation

The EFA using all the 25 items yielded the six factors, explaining 62.77% of total variance. The factor loading of each item for its corresponding factor was above 0.50, and no item had cross loadings over 0.32. The results of the Coefficient H reliability are presented in Table 1: feedback: 0.83 (four items), scaffolding: 0.75 (four items), active learning: 0.74 (four items), collaborating: 0.81 (three items), teachers' self-concept: 0.83 (five items), and students' engagement in learning: 0.81 (four items), suggesting that all the scales were reliable.

Table 1. Factor loadings in the final SEM.

	Feedback	Scaffolding	Active Learning	Collaborating	Self-Concept	Engagement
Mean	4.15	4.35	4.74	4.12	4.48	4.74
SD	0.66	0.49	0.37	0.72	0.45	0.37
Factor loadings						
Feedback1	0.49 *					
Feedback2	0.77 *					
Feedback3	0.81 *					
Feedback4	0.80 *					
Scaffolding1		0.65 *				
Scaffolding2		0.54 *				
Scaffolding3		0.73 *				
Scaffolding4		0.63 *				
Active1			0.62 *			
Active2			0.66 *			

Active3			0.76 *			
Active4			0.78 *			
Collaborating1				0.78 *		
Collaborating2				0.70 *		
Collaborating3				0.68 *		
Self-concept1					0.73 *	
Self-concept2					0.70 *	
Self-concept 3					0.66 *	
Self-concept 4					0.62 *	
Self-concept 5					0.73 *	
Engagement1						0.68 *
Engagement2						0.58 *
Engagement3						0.62 *
Engagement4						0.79 *
Factor correlations						
Feedback	---					
Scaffolding	0.58 *	---				
Active learning	0.46 *	0.65 *	---			
Collaborating	0.47 *	0.36 *	0.44 *	---		
Self-concept	0.54 *	0.63 *	0.63 *	0.33 *	---	
Engagement	0.41 *	0.53 *	0.45 *	0.20 *	0.75 *	---

Note: * $p < 0.05$.

The CFA testing six factors resulted in a proper solution with a reasonable fit: χ^2 (87) = 336.49, TLI = 0.90, CFI = 0.91, RMSEA = 0.06. In comparison, a competing CFA model testing a single factor derived from the 25 items resulted in a proper solution but did not fit as well as Model 1: χ^2 (72) = 680.26, TLI = 0.64, CFI = 0.61, RMSEA = 0.12.

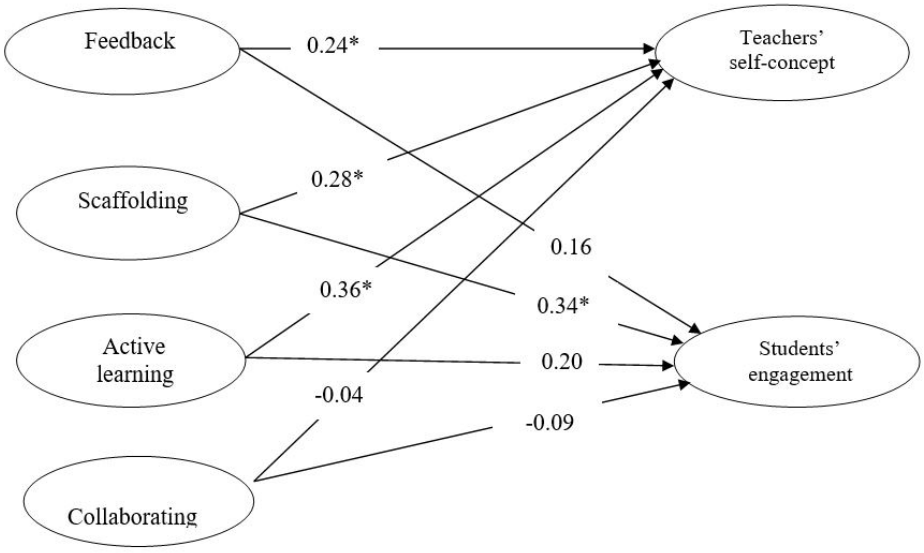
The final SEM used the whole data, which produced proper fit χ^2 (87) = 380.75, TLI = 0.91, CFI = 0.97, RMSEA = 0.05. Table 1 presents the factor loadings for the items on each scale on the basis of the final SEM, all being above 0.49. The correlations of the six latent scales are displayed in Table 1. The scale correlations ranged from 0.20 to 0.75, suggesting that the six scales were distinguishable from each other. The correlations among the four teaching strategies were all positive (feedback and scaffolding: r = 0.58, $p < 0.01$; feedback and active learning: r = 0.46, $p < 0.01$; feedback and collaborating: r = 0.47, $p < 0.01$; scaffolding and active learning: r = 0.65, $p < 0.01$; scaffolding and collaborating: r = 0.36, $p < 0.01$; active learning and collaborating: r = 0.44, $p < 0.01$). These indicate that teachers who use one kind of teaching strategies tend to also apply other three kinds of teaching strategies as well.

The teaching strategies were also positively correlated with the teachers' self-concept (feedback: r = 0.54, $p < 0.01$; scaffolding: r = 0.63, $p < 0.01$; active learning: r = 0.63, $p < 0.01$; collaborating: r = 0.33, $p < 0.01$), implying that applying these teaching strategies are likely to bring about positive self-perceptions of oneself as a teacher. Likewise, the four scales of teaching strategies also had positive association with the students' engagement scale (feedback: r = 0.41, $p < 0.01$; scaffolding: r = 0.53, $p < 0.01$; active learning: r = 0.45, $p < 0.01$; collaborating: r = 0.20, $p < 0.01$), suggesting that using feedback, scaffolding, active learning, and collaborating strategies in teaching tend to be also positively associated with students' engagement in learning. In summary, the reliability analysis results, the factor loadings, the correlations among scales, and the fit statistics all supported the model to be reasonable and interpretable.

4.2. Results of the SEM

On the basis of the latent scales established in the CFA, this study further conducted an SEM to test the relative influences of the four teaching strategies predictors (feedback, scaffolding, active learning, and collaborating) on the two outcome variables (teachers' self-concept and students' engagement). The goodness-of-fit of the model was identical to

the corresponding CFA model: χ^2 (237, N = 208) = 375.66, $p < 0.01$, TLI = 0.91, CFI = 0.92, RMSEA = 0.05). The paths are shown in Figure 1. From Figure 1, it is clear that the feedback scale had a significantly positive path to teachers' self-concept (β = 0.24, $p < 0.05$), but a nonsignificant path to the students' engagement (β = 0.16, $p = 0.15$). Scaffolding had significantly positive paths to both teachers' self-concept (β = 0.28, $p < 0.05$) and students' engagement (β = 0.34, $p < 0.05$). Similar to the feedback scale, the path of the active learning scale to teachers' self-concept was significant and positive (β = 0.36, $p < 0.01$), whereas the one to students' engagement was not significant (β = 0.20, $p = 0.12$). For collaborating, neither path was a statistically significant path to teachers' self-concept (β = −0.04, $p = 0.67$) or to students' engagement (β = −0.09, $p = 0.38$).



Note: *$p < 0.05$

Figure 1. Results of the SEM.

5. Discussion

The purpose of the present study was to examine how the four popular teaching strategies contributed to students' learning engagement and teachers' self-concept. As predicted, all the four teaching strategies (i.e., feedback, scaffolding, active learning, and collaborating) were found to be positively associated with the teachers' perceived students' engagement in learning and teachers' self-concept. Among the four strategies, scaffolding was the only significant contributor to students' learning engagement. In terms of the predictions of the teaching strategies on teachers' self-concept, three out of four teaching strategies in the SEM model had significant and positive paths to teachers' self-concept (Figure 1). However, the path from collaborating was near zero, although the correlation between collaborating and teachers' self-concept was positive and moderate. This implies that even though teachers who use collaborating strategies would probably have a positive self-concept as a teacher, or teachers who have a positive self-concept are likely to promote collaborating, when the four teaching strategies were considered together, collaborating did not appear to be a significant contributing factor. This means that although the teaching strategy of encouraging collaborating may enhance teachers' self-concept, the enhancement of teachers' self-concept would benefit more from the other three strategies (i.e., feedback, scaffolding, and active learning strategies). As suggested in the self-concept literature of the relations between self-concept and performance [43], one may also envis-

age mutually reinforcing relations such that higher teachers' self-concept would also reinforce feedback, scaffolding, and active learning strategies in the long term. However, this possibility will need longitudinal data and modelling to testify.

The stronger predictions of these three strategies over collaborating strategy for teachers' self-concept may have been due to the more active role that teachers play in these three strategies. In the teaching process, teachers assume a more central and guiding role in when they provide feedback to students and when they use different scaffolds to support students' learning. However, different from our hypothesis, we found that adopting active learning strategies was the strongest contributor to teachers' self-concept, even though in this teaching strategy, teachers seem to play a more peripheral role. A possible interpretation of such strong and positive prediction from active learning to teachers' self-perceptions of their abilities in teaching might be influenced by students' performance in learning. The meta-analysis showed that students in the active learning design were 1.5 times more likely to pass the courses [27]. Though this study did not directly test students' learning performance, it is possible that as the teachers made efforts to actively involve students in the learning process, which might promote their academic performance, which in turn positively affects teachers' perceptions of their own teaching ability. However, as students' academic performance was not examined in the current study, such interpretation is only tentative and should be tested in future research.

Although collaborating and teachers' self-concept are positively and moderately correlated, collaborating did not emerge as a significant predictor of teachers' self-concept when the four teaching strategies examined in the same model. This relatively weaker prediction from collaborating than the other three teaching strategies seems reasonable. It would not be surprising that the more often a teacher implements collaborative activities in classroom teaching, the less the teacher plays a leading and a central role in the teaching process. As the promotion of collaborative learning in the classroom shifts away from a teacher-centred teaching strategy, at least some teachers would relate this strategy less to their teaching competence from a traditional knowledge transmission perspective [44]. It is possible that because collaborating strategy focuses on students' involvement and agency instead of teaching's dominant role in the classroom, this learner-centred strategy is less likely to strongly influence teachers' self-perceptions of their teaching competence. This might also suggest that at least some of the teachers in our sample still regarded their competence in teaching to the ability of transmitting knowledge. However, this speculation should be examined in the future through some qualitative methods, such as in-depth interviews with teachers. Moreover, we also observed that the correlations between collaborating and the other three teaching strategies (rs ranged from 0.36 to 0.47) tend to be slightly lower than the correlations amongst the other three teaching strategies (rs ranged from 0.44 to 0.58), possibly implying that collaborating strategy was perceived differently by teachers. Out of the expectation are the differential predictions from active learning and collaborating to teachers' self-concept, as in both strategies, students play central roles whereas teachers have peripheral roles. However, in reality, collaborating strategy seems to be more complex than active learning as when no clear guideline of interaction is provided, students may go off-topic in the collaboration process [34–37]. Hence, even when teachers implement collaborative strategies, such implementation may not produce effective learning, which may affect teachers' perceptions of relation using collaborative strategies with teachers' self-concept in teaching.

Whereas the teaching strategies have long been recognised as beneficial to effective learning outcomes for students [3]), a contribution of our analysis is identification of their potential benefits to teachers. Our results show that by using these strategies in classroom teaching, teachers may feel self-fulfilled and appreciate their teaching, leading to a higher self-concept of teaching competence. As self-concept is known to be a significant factor that is likely to bring further benefit to performance in future [43], building a better self-concept which will likely to strengthen teachers' skills in applying strategies in teaching in the long term.

With regard to the contributions of the four teaching strategies to students' engagement in learning, the results of this study show that although all the four teaching strategies were positively and significantly associated with students' engagement, when putting them in a single model, only scaffolding emerged as a significant and positive contributor to students' engagement. Indeed, scaffolding is listed as one of the top factors which has positive effects on students' learning [5]. As this study's participants were primary school students who needed various scaffolds in particular, it was reasonable that teachers perceived that this strategy was most effective to engage students in the learning process.

The near-zero paths from collaborating to students' engagement is displeasing. The negligible path seems to reflect either that collaborating has not been effectively implemented by the teachers or that the primary students have not been able to work collaboratively in a constructive way to promote engagement in learning activities. If the former that is related to the teacher is the reason, then through teachers' professional development of building the capacity of teachers to more effectively use collaborating in the classroom would be necessary. If the latter that is related to the students' developmental characteristics, then curriculum designers and researchers would have a significant role for designing the most developmentally appropriate collaborative tasks for primary students at different developmental stages. Moreover, some training and instruction on how to collaborate effectively should also be implemented. Prior research shows that pretask modelling is able to encourage opportunities for collaboration [65]. For instance, teachers could provide advice and models that reveals what successful collaboration looks like; the stages of team building; as well as specific skills for communication, conflict management, trust building, and active listening [66].

Different from the hypothesis is the finding of the non-significant path from feedback to students' engagement. Although feedback was found to be positively correlated with students' engagement, the path from feedback to students' engagement was not statistically significant. This could be that feedback may not be effective for promoting learning engagement. [8] reported that feedback tended not to be effective on the motivational and behavioural outcomes in learning.

6. Limitations and Future Directions

Despite the significant findings, the present study suffers from some limitations which need to be addressed in future studies. First, considering the young age of primary school students, this study used teachers' ratings to reflect students' engagement from the teachers' perspective. This might not be a true representation of students' learning engagement. Hence, future studies may use a combination of teachers', parents', and students' ratings to measure students' engagement in learning. Second, this study was purely quantitative, which limits the possibility of an in-depth exploration of interaction among teaching strategies, teachers' self-concepts, and students' engagement. Future studies should therefore employ some qualitative research techniques, such as open-ended questions and interviews, in order to supplement findings from the current study. Third, this research was cross-sectional, preventing the testing of any reciprocal hypotheses and causality among these relations. Future studies may endeavour to collect multiple waves of data in a longitudinal modelling design in order to test reciprocal relations between teaching strategies, teachers' self-concepts, and students' engagement.

7. Practical Implications and Conclusions

The findings of this study have significant practical implications for teaching practices. Different from the commonly held concepts that active learning and collaborating strategies would get students engaged in the learning processes, this study's findings do not support this view. In a model such as the one outlined in this study, wherein a number of teaching strategies were examined simultaneously, this study found that the two strategies did not make significant contributions to students' engaged learning as much as

scaffolding. The practical implication is that for students in primary school, if students' engagement is the main focus, then scaffolding (i.e., building upon what students already know and helping students to understand better through self-regulated learning) should be the prominent strategy to use. This is logical as primary students need systematic guidance to learning compared to more mature learners. Therefore, when teachers try to adopt teaching strategies appropriate to their classroom, they need to consider the age of learners.

The way in which to successfully incorporate active learning and collaborating strategies into primary teaching would require further investigation. Teacher educators and curriculum designers would have significant contributions to these aspects of teaching. For example, researchers have advocated that in order for collaborating to be effective in learning, teachers need to frequently monitor students' interaction and provide structured and informative guidelines before students' interaction [67]. Specific teacher education programs on how to organise these kinds of activities and how to make them work for primary students should be designed to empower teachers in these techniques.

To conclude, this empirical study has provided important evidence for the relations of teaching strategies, teachers' self-concept, and students' engagement in learning in the primary school teaching context in urban and rural Australia. The findings in these least researched relations demonstrate that not all well-known teaching strategies are equally effective in engaging primary school students. Likewise, not all kinds of teaching strategies are conducive to enhancing teachers' self-concept in teaching. In the face of numerous suggestions and choices about good teaching practices, it is the teaching context and characteristics of the students that matter in bringing the best effects of a specific strategy to both students and teachers in order to achieve the ultimate goal of providing quality education, which is effective and sustainable.

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References

1. United Nations The 17 Goals. Available online: https://sdgs.un.org/goals (accessed on 18 March 2021).
2. Orlich, D.; Harder, R.J.; Trevisan, M.S.; Brown, A.H.; Miller, D.E. Teaching strategies: A guide to better instruction, 11th ed.; Cengage Learning: Boston, MA, USA, 2017.
3. Hattie, J.A.; Anderman, E. International guide to student achievement, 2nd ed.; Routledge: New York, USA, 2019.
4. Lee, M.-H.; Tsai, C.-C. Exploring teachers' perceived self efficacy and technological pedagogical content knowledge with respect to educational use of the World Wide Web. *Instr. Sci.* **2008**, *38*, 1–21, doi:10.1007/s11251-008-9075-4.
5. Visible Learning Plus: 252 + Influences on Student Achievement. Available online: https://visible-learning.org/wp-content/uploads/2018/03/VLPLUS-252-Influences-Hattie-ranking-DEC-2017.pdf (accessed on 26 April 2021).
6. Hattie, J.A. *Visible Learning for Teachers: Maximizing Impact on Learning*; Routledge: New York, NY, USA, 2012.
7. Bates, A.S.; Shifflet, R.; Lin, M. Academic achievement: An elementary school perspective. In *International Guide to Student Achievement;* Hattie, J.A., Anderman, E., Eds.; Routledge: New York, NY, USA, 2013, pp. 7-9.
8. Wisniewski, B.; Zierer, K.; Hattie, J. The Power of Feedback Revisited: A Meta-Analysis of Educational Feedback Research. *Front. Psychol.* **2020**, *10*, 3087, doi:10.3389/fpsyg.2019.03087.
9. Hattie, J.; Timperley, H. The Power of Feedback. *Rev. Educ. Res.* **2007**, *77*, 81–112, doi:10.3102/003465430298487.
10. Hattie, J.A.; Clark, S. *Visible Learning: Feedback*; Routledge: New York, NY, USA, 2018.
11. Wilson, A. Student engagement and the role of feedback in learning. *J. Pedagog. Dev.* **2012**, *21*, 15–19.
12. Kluger, A.N.; DeNisi, A. The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychol. Bull.* **1996**, *119*, 254–284.

13. Hattie, J.A. *Visible Learning: A Synthesis of 800+ Meta-Analyses on Achievement*; Routledge, London, UK, 2009.
14. Hattie, J.; Zierer, K. *Visible Learning Insights*; Routledge: London, UK, 2019.
15. Haruehansawasin, S.; Kiattikomol, P. Scaffolding in problem-based learning for low-achieving learners. *J. Educ. Res.* **2018**, *111*, 363–370.
16. Kim, N.J.; Belland, B.R.; Axelrod, D. Scaffolding for Optimal Challenge in K–12 Problem-Based Learning. *Interdiscip. J. Probl. Learn.* **2018**, *13*, 3, doi:10.7771/1541-5015.1712.
17. Smit, N.; van de Grift, W.; de Bot, K.; Jansen, E.A. Classroom observation tool for scaffolding reading comprehension. *System* **2017**, *65*, 117–129.
18. Kilic, H. Pre-service Mathematics Teachers' Noticing Skills and Scaffolding Practices. *Int. J. Sci. Math. Educ.* **2016**, *16*, 377–400, doi:10.1007/s10763-016-9784-0.
19. Angeli, C.; Valanides, N. Developing young children's computational thinking with educational robotics: An interaction effect between gender and scaffolding strategy. *Comput. Hum. Behav.* **2020**, *105*, 105954, doi:10.1016/j.chb.2019.03.018.
20. Abdurrahman, A.; Nurulsari, N.; Maulina, H.; Rahman, B.; Umam, R.; Jermsittiparsert, K. Multi-level scaffolding: A novel approach of physics teacher development program for promoting content knowledge mastery. *Int. J. Innov. Creat. Chang.* **2019**, *78*, 71–89.
21. Yusuk, S. Effects of zone of proximal development based scaffolding techniques on reading comprehension of Thai university students. *Interdiscip. Res. Rev.* **2018**, *134*, 1–6.
22. Baepler, P.; Walker, J.D.; Brooks, D.C.; Saichaie, K.; Petersen, C.I. *A Guide to Teaching in the Active Learning Classroom: History, Research, and Practice*; Stylus Publishing: Sterling, VA, USA, 2016.
23. Bransford, J.D.; Brown, A.L.; Cocking, R.R. (Eds.). *How People Learn: Brain, Mind, Experience, and School*; National Academy Press: Washington, DC, USA, 1999.
24. Ueckert, C.; Gess-Newsome, J. Active learning strategies. *Sci. Teach.* **2008**, *75*, 47–52.
25. Hodges, L.C. Student engagement in active learning classes. In *Active Learning in College Science*; Mintzes, J., Walter, E., Eds.; Springer: Basel, Switzerland, 2020; pp. 27–41.
26. Hyun, J.; Ediger, R.; Lee, D. Students' satisfaction on their learning process in Active Learning and Traditional Classrooms. *Int. J. Teach. Learn. High. Educ.* **2017**, *291*, 108–118.
27. Freeman, S.; Eddy, S.L.; McDonough, M.; Smith, M.K.; Okoroafor, N.; Jordt, H.; Wenderoth, M.P. Active learning increases student performance in science, engineering, and mathematics. *Proc. Natl. Acad. Sci. USA* **2014**, *111*, 8410–8415.
28. Nokes-Malach, T.J.; Richey, J.E.; Gadgil, S. When Is It Better to Learn Together? Insights from Research on Collaborative Learning. *Educ. Psychol. Rev.* **2015**, *27*, 645–656, doi:10.1007/s10648-015-9312-8.
29. Altınay, Z. Evaluating peer learning and assessment in online collaborative learning environments. *Behav. Inf. Technol.* **2016**, *36*, 312–320, doi:10.1080/0144929x.2016.1232752.
30. Rohrbeck, C.A.; Ginsburg-Block, M.D.; Fantuzzo, J.W.; Miller, T.R. Peer-assisted learning interventions with elementary school students: A meta-analytic review. *J. Educ. Psychol.* **2003**, *95*, 240–257, doi:10.1037/0022-0663.95.2.240.
31. Pai, H.-H.; Sears, D.A.; Maeda, Y. Effects of Small-Group Learning on Transfer: A Meta-Analysis. *Educ. Psychol. Rev.* **2015**, *27*, 79–102, doi:10.1007/s10648-014-9260-8.
32. Ensergueix. P.J. Reciprocal peer tutoring in a physical education setting: Influence of peer tutoring training and gender on motor performance and self-efficacy outcomes. *Eur. J. Psychol. Educ.* **2010**, *25*, 222–242.
33. Deniz Can, D.; Ginsburg-Block, M. Peer tutoring strategies and their impact on child achievement. In *The International Handbook of Student Achievement*; Hattie, J.A., Anderman, E.M., Eds.; Routledge: Oxford, UK, 2013, pp. 375-404.
34. Storch, N. *Collaborative Writing in L2 Classrooms*; Multilingual Matters: Bristol, UK, 2013.
35. Li, M.; Zhu, W. Good or bad collaborative wiki writing: Exploring links between group interactions and writing products. *J. Second. Lang. Writ.* **2017**, *35*, 38–53, doi:10.1016/j.jslw.2017.01.003.
36. Le, H.; Janssen, J.; Wubbels, T. Collaborative learning practices: Teacher and student perceived obstacles to effective student collaboration. *Camb. J. Educ.* **2016**, *48*, 103–122, doi:10.1080/0305764x.2016.1259389.
37. Scheeler, M.C.; Macluckie, M.; Albright, K. Effects of Immediate Feedback Delivered by Peer Tutors on the Oral Presentation Skills of Adolescents with Learning Disabilities. *Remedial Spéc. Educ.* **2010**, *31*, 77–86, doi:10.1177/0741932508327458.
38. Shavelson, R.J.; Hubner, J.J.; Stanton, G.C. Self-concept: Validation of construct interpretations. *Rev. Educ. Res.* **1976**, *46*, 407–441.
39. Marsh, H.W.; Martin, A.J.; Yeung, A.S.; Craven, R.C. Competence self-perceptions. In *Handbook of Competence and Motivation: Theory and Application*, 2nd ed.; Elliot, A.J., Dweck, C.S., Yeager, D.S., Eds.; Guilford Press: New York, NY, USA, 2017; pp. 85-115.
40. Marsh, H.W.; Pekrun, R.; Parker, P.D.; Murayama, K.; Guo, J.; Dicke, T.; Arens, A.K. The murky distinction between self-concept and self-efficacy: Beware of lurking jingle-jangle fallacies. *J. Educ. Psychol.* **2019**, *111*, 331–353, doi:10.1037/edu0000281.
41. Han, F. Longitudinal Relations Between School Self-concept and Academic Achievement. *Rev. De Psicodidáctica (Engl. Ed.)* **2019**, *24*, 95–102, doi:10.1016/j.psicoe.2019.03.002.
42. Wolff, F.; Sticca, F.; Niepel, C.; Götz, T.; Van Damme, J.; Möller, J. The reciprocal 2I/E model: An investigation of mutual relations between achievement and self-concept levels and changes in the math and verbal domain across three countries. *J. Educ. Psychol.* **2020**, doi:10.1037/edu0000632.

43. Möller, J.; Zitzmann, S.; Helm, F.; Machts, N.; Wolff, F. A Meta-Analysis of Relations Between Achievement and Self-Concept. *Rev. Educ. Res.* **2020**, *90*, 376–419, doi:10.3102/0034654320919354.
44. Trigwell, K.; Prosser, M. *Exploring University Teaching and Learning: Experience and Context*; Palgrave Macmillan: London, UK, 2020.
45. Fredricks, J.A. Engagement in School and Out-of-School Contexts: A Multidimensional View of Engagement. *Theory Into Pr.* **2011**, *50*, 327–335, doi:10.1080/00405841.2011.607401.
46. Lei, H.; Cui, Y.; Zhou, W. Relationships between student engagement and academic achievement: A meta-analysis. *Soc. Behav. Pers. Int. J.* **2018**, *46*, 517–528, doi:10.2224/sbp.7054.
47. Wang, M.-T.; Eccles, J.S. School context, achievement motivation, and academic engagement: A longitudinal study of school engagement using a multidimensional perspective. *Learn. Instr.* **2013**, *28*, 12–23, doi:10.1016/j.learninstruc.2013.04.002.
48. Deci, E.L.; Ryan, R.M. Self-Determination. In *The Corsini Encyclopedia of Psychology*; John Wiley & Sons: Hoboken, NJ, USA, 2010.
49. Assor, A.; Kaplan, H.; Roth, G. Choice is good, but relevance is excellent: Autonomy-enhancing and suppressing teacher behaviours predicting students' engagement in schoolwork. *Br. J. Educ. Psychol.* **2002**, *72*, 261–278, doi:10.1348/000709902158883.
50. Marsh, H.W. Content specificity of relations between academic achievement and academic self-concept. *J. Educ. Psychol.* **1992**, *841*, 35–42.
51. Cabrera-Nguyen, P. Author Guidelines for Reporting Scale Development and Validation Results in the Journal of the Society for Social Work and Research. *J. Soc. Soc. Work. Res.* **2010**, *1*, 99–103, doi:10.5243/jsswr.2010.8.
52. Brown, J.D. Statistics corner. Questions and answers about language testing statistics: Choosing the right number of components or factors in PCA and EFA. Shiken: JALT Testing. *Eval. SIG Newsl.* **2009**, *132*, 19–23.
53. Tabachnick, B.G.; Fidell, L.S. *Using Multivariate Statistics*; Allyn and Bacon: Boston, MA, USA, 2007.
54. Bentler, P.M. Covariance structure models for maximal reliability of unit-weighted composites. In *Handbook of Latent Variable and Related Models*; Lee, S, Ed.; Elsevier: New York, NY, USA, 2007; Volume 1, pp. 1–19.
55. Hancock, G.R.; Mueller, R.O. Rethinking construct reliability within latent variable systems. In *Structural Equation Modeling: Present and Future – A Festschrift in Honor of Karl Jöreskog*; Cudeck, R., du Toit, S., Sörbom, D, Eds.; Scientific Software International: Lincolnwood, IL, USA, 2001, pp. 195–216.
56. McNeish, D. Thanks coefficient alpha, we'll take it from here. *Psychol. Methods* **2018**, *233*, 412–433.
57. Raykov, T. Behavioral scale reliability and measurement invariance evaluation using latent variable modeling. *Behav. Ther.* **2004**, *35*, 299–331, doi:10.1016/s0005-7894(04)80041-8.
58. Kane, M.T. Explicating validity. Assessment in Education: Principles, *Policy Pract.* **2016**, *232*, 198–211.
59. Kline, R.B. *Principles and Practices of Structural Equation Modelling*, 2nd ed.; The Guilford Press: New York, NY, USA, 2005.
60. Jöreskog, K.G.; Sörbom, D. LISREL 8.72: *Structural Equation Modelling with SIMPLIS Command Language;* Scientific Software International: Chicago, IL, USA, 2005.
61. Tucker, L.R.; Lewis, C. A reliability coefficient for maximum likelihood factor analysis. *Psychometrika* **1973**, *38*, 1–10, doi:10.1007/bf02291170.
62. Bentler, P.M. Comparative fit indexes in structural models. *Psychol. Bull.* **1990**, *107*, 238–246, doi:10.1037/0033-2909.107.2.238.
63. Browne, M.W.; Cudeck, R. Alternative ways of assessing model fit. *Sociol. Methods Res.* **1992**, *21*, 230–258.
64. Hu, L.T.; Bentler, P.M. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct. Equ. Model. Multidiscip. J.* **1999**, *6*, 1–55.
65. Kim, Y.; McDonough, K. Using pretask modelling to encourage collaborative learning opportunities. *Lang. Teach. Res.* **2011**, *15*, 183–199, doi:10.1177/1362168810388711.
66. Johnson, D.W., Johnson, R.; Holubec, E. (Eds.) *Cooperation in the Classroom*; Interaction Book: Edina, MN, USA, 2008.
67. Duran, D.; Blanch, S., Thurston, A.; Topping, K. Online reciprocal peer tutoring for the improvement of linguistic abilities in Spanish and English. *J. Study Educ. Dev.* **2010**, *33*, 209–222.