

Implementation of co-teaching approach in an inclusive classroom: overview of the challenges, readiness, and role of special education teacher

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Received: 7 September 2015 / Revised: 29 January 2016 / Accepted: 1 February 2016 / Published online: 13 February 2016
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Abstract The objective of this study was to determine the relationship aspect of the challenge, readiness, and the role of special education teacher (SET) in implementing common approaches in inclusive classrooms. Experiences as a moderator were used to see the effect of the co-teaching component. This study used a sampling method that involved 240 respondent's representatives of the population of SET in Malaysia. The findings of this study showed that there was a high positive tendency in choosing the approach that is likely to progress than the existing ones. In this area, there were challenges and readiness of positive selection than teacher experience. Overall, this study could impact the implementation of co-teaching approach than the implementation of the existing programme.

Keywords Challenge · Readiness · Inclusive · Special education · Co-teaching

Introduction

The education system in Malaysia has shown many positive changes through the education transformation which was launched by the government. These changes include various aspects including the teaching practice in schools. Positive developments in special education policies and implementation also show a change that is expected to provide a positive impact to all (Interim Strategic Plan,

2012). Therefore, there are some new approaches introduced through the policy and implementation of inclusive education. Teaching approach with an added co-teaching element will be able to raise the prestige of special education. This is because the relationship and sharing teaching skills and specialities between different groups are the best solution to enhance the teaching quality. The latest teaching approaches need to be identified and could be managed by the teachers (MOE Malaysia, 2013). This is highlighted so an appropriate educational process prepared is in line with the rapid development of education. Besides, it is able to produce teachers and students who can give the best changes in the quality of academic performance. Besides, it is in line with the needs of special education students (SES) and the changes in education transformation.

The implementation of a new policy in education will provide many challenges. The implementation of co-teaching approach requires consideration in terms of challenges. As discussed by Conderman and Hedin (2012, 2013), there are many challenges associated with planning, support administrators, teaching different styles, and that teacher expectations involved in this approach. Scruggs et al. (2007) stated that although there are many challenges in the early stages of implementation, it will decrease after the parties involved thoroughly are informed about it other than humanistic factor.

The implementation of co-teaching approach is associated with the aspects of readiness. Friend and Cook (1992) mentioned that readiness have provided a new insight for the teachers involved. According to them, readiness is one of the factors required to increase the quality of teaching for each teacher to provide the best service in teaching. Readiness aspect also refers to the ability of teachers to deliver a content subject. Dieker and Murawski (2003)

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stated that teachers involved in the implementation of teaching need the skills in their subject area because a lot of techniques and models of co-teaching need to be carried out during the teaching process. According to Friend (2008b), there are six models of co-teaching and SET should be familiar with them when they implement the co-teaching approach. The role of SET in implementing the national education policy cannot be denied. There are many SETs who have contributed greatly to the implementation of policies and the success achieved today (Carrington and Robinson 2004, 2006). SETs have a great responsibility as described by Sukumaran (2014) including the preparation of the subject, familiar to the aspect of individual needs, and the welfare of each student. SET must always be alert to the needs of SES according to their individual needs and able to fulfil the diverse needs.

Research questions

Three research questions have been developed from the literature review. They are:

1. Are there positive relationship aspects between challenges and the implementation of co-teaching?
2. Are there positive relationship aspects between readiness and the implementation of co-teaching?
3. Are there positive relationship aspects between the role of special education and the implementation of co-teaching?

Literature review

Co-teaching approach

Conderman and Hedin (2012) found that inclusive implementation requires a new perspective that is related to the quality by a combination of new ideas. It means that it can be interpreted as an inclusive that can be improved by implementing the recommendations set out by Friend (2008a). She stressed the requirements for the implementation of co-teaching. However, there are many obstacles that must be overcome to enable the administrator to carry out certain matters that have been kept in the act. The co-teaching approach has been widely and frequently discussed. According to Rice and Zigmond (2000), the implementation of co-teaching is a continuation to the concept of team teaching.

In the 1990s, the term was shortened to cooperative learning 'co-teaching'. According to the Friend et al. (2010), they termed teaching together as a teaching approach that involves the implementation in which the mainstream teachers and SET share the responsibility to

design, deliver, and evaluate teaching sessions to be assigned to a group of students which involve the collection of special education students. Friend (2008a) stated that co-teaching can also be referred to as collaborative teaching, team teaching, or cooperative learning. It also consists of professionals, mainstream teachers, and SET. This statement is supported by Friend and Cook (1992) who stated that the term refers to collective teaching which will provide educational benefits to SES and mainstream students in inclusive classrooms.

As discussed by Shin et al. (2016), the better understanding between teachers will make the co-teaching in a good practice. Their study found four implications of success in co-teaching, whereas mutual communication and collaboration, lack of training, opportunities of co-plan, and general education do not provide information about success of special education instructional strategies. All these four elements are involved in this study. Authors are looking for other information from different literature in Malaysian context.

Magiera et al. (2005) combined a few elements presented in previous studies with regard to the purpose of co-teaching subsequently. It may produce a new definition of co-teaching approach of mainstream elements between mainstream teachers and SET. They should work together in a physical space with a variety of teaching activities and also provide optimal teaching for the students. This opinion is also in line with McDuffie et al. (2009) in which she suggested to make the co-teaching beneficial to the diverse backgrounds of the students' abilities and also attributes to collaborate and share knowledge and skills to improve their programmes.

Components of co-teaching approach

The components of co-teaching approach with the purpose of teaching in this study refer to the five points proposed by Friend and Cook (1992). According to the study, to get the best implementation of co-teaching, teachers should be alert about the component of co-teaching. Based on the suggestions, philosophy, personal qualities, professional qualities, classroom dynamics, and external support are key to the success of co-teaching. The relationship between each item will give the meaning to the common teaching approach.

Challenges of co-teaching implementation

Teacher recruitment is an important element for the success of co-teaching approach. However, there are many challenges to be encountered before achieving the success. Many studies have proved that challenges will shape the experiences. Through the experience, a new approach of

teaching will be enhanced. According to Bradley et al. (2007), time management is a priority requirement in planning the co-teaching. A teacher faces many challenges; thus, a teaching session should be discussed prior to implementation. The impact on non-systematic scheduling is also a barrier to be discussed among teachers. However, according to Bristol (2014), teachers must allocate appropriate time for discussion so that a plan can be implemented. A discussion by Lin and Lin (2014) expressed that the need for specific training plan time and discussions should be emphasized.

The implementation of co-teaching requires the approval of the administrator. The role of the administrator is to ensure that this approach can be carried out and it is a very important aspect. For example, the number of teachers involved needs to be considered. Schul (2011) stated that implementing teacher ratio needs to be compatible. This statement is supported by Rhodes & Brundrett (2009) who confirmed that the number of teachers required should be in accordance with the needs of SES so that teaching can be done better. Scruggs et al. (2007) argued about the lack of administrative support and attention as it will complicate the implementation of co-teaching. Hence, the planning and implementation of programmes must be supported by an administrator.

Support in a form of financial provision requires administrators concerns. According to Madaus et al. (2010), the distribution of financial allocations for the implementation of co-teaching is also a determinant of the success which could give a positive impact as the needs of SES are not limited to the aspect of teaching but also involve the purchase and provision of specialized learning tools. Ajuwon (2008) has simplified that, in inclusive classrooms, students need to be prepared because learning aids are geared to individual needs. Obviously, this shows that the financial allocation is needed to ensure the success of teaching together.

Fidelity is important to the school professionals as mentioned by McKenna et al. (2014). According to him, measuring of fidelity of certain desired method can improve student's performance. This idea is inclined with Shin et al. (2016), whereas the idea of co-teach required teachers to understand the benefit of co-teaching models and apply the model in the classroom. The repetition of certain model will improve skills and enhance student acceptance of two teachers teaching in a classroom. Teacher should work together in many ways including managing time in the classroom and providing time for discussion on co-planning strategy. Both teachers must have fidelity to perform the real and established co-teaching model. This is a part of challenges in co-teaching because teacher really needs to understand and well practise the model because each model has a different style of

practices. The potential benefit of co-teaching will give a different impact for every model suggested by the practice.

Teachers' readiness of co-teaching

The implementation of co-teaching approach can be further strengthened by the readiness aspect among SET. Among the necessary readiness is the shared responsibility. Teachers need to give high commitment in every teaching design decided. According to Friend and Cook (1992), as a result of a readiness to share responsibility, it will reduce the workload and increase cooperation (Murawski and Dieker 2008). Hence, it is important to build teachers' readiness expectation on how co-teaching works. SET should be able to adapt the new environment. They should be prepared to be placed in the mainstream classroom, and teachers can run lessons in pairs as a way to adapt to the mainstream. As stated by Friend et al. (2010), teachers need to improve their communication skills because the implementation of communication between teachers teaching together is very important to ensure the learning objectives can be achieved.

Elevated levels of learning achievement are very important in inclusive classrooms so it helps during the study (Smith et al. 2008). To achieve an improvement, every student's strengths and weaknesses need to be addressed. SET should be ready to record and analyse any changes in behaviour and always sensitive to the needs of students. Positive changes will reflect the success of students with teaching approaches.

Other than the readiness to change the SESs' behaviour and getting the enhancement in academic, teachers also need to increase the level of mastery in the subject syllabus (Austin 2001). Teachers need to be considerate in managing the educational content, and they should be able to make adjustments according to students' ability levels. Teachers must be ready to change their teaching techniques to increase the quality of student learning. According to Gately (2005), teachers should be able to deliver their teaching content according to students' acceptance capability.

Teachers' role of co-teaching

There are several roles that need to be given special attention by the SET who are involved in the implementation of co-teaching approach. This approach will provide a very useful experience for each teacher because according to Friend (2008a, b), the presence of teachers in inclusive classrooms will provide a new experience to the SES as their motivation to learn will increase. Scruggs et al. (2007) found that the motivation and learning performance of two groups of students improved by the presence of two teachers.

In the implementation of co-teaching, SET's role is as a facilitator in the classroom (Learned et al. 2009). They need to focus on the subjects that are taught and understand the content. Mastropieri et al. (2005) suggests that teachers should convey them in a form that is more easily understood by SES. In line with the findings, although there are six models introduced, the tendency of mainstream teachers plan and the implementation of some specific models have a good impact on improving teacher recruitment and SES performance (Anuar and Rahim 2014).

According to Madaus et al. (2010), SETs have to carry out discussions with mainstream teachers about the contents and weight that should be given to SES. As it is known, the level of acceptance of SES is not the same as the mainstream students so they should be given the suitability of curriculum content (Murawski and Dieker 2008). Discussion with mainstream teachers on the weight of the examination should also be done as described by Murawski (2005). This discussion is important so that SES is not loaded with educational content that will ultimately affect their motivation to learn. Discussion among the teachers should be done so that the concept of inclusive classroom learning can be continued even if the contents of a subject are modified.

The implementation of common approach also requires SET to communicate with students more often as mentioned by Conderman and Hedin (2013). They will provide information about the current state of the students and then facilitate the students and teachers knowing their feedback during class. Students should be given attention by monitoring their level of understanding. Teachers can change the learning approach if it feels inappropriate at the time required.

Figure 1 shows the relationship formed through the three aspects mentioned in the review of the challenges (Scruggs et al. 2007), readiness (Murawski and Dieker 2008), the role of SET (Friend 2008a, b), and the role of co-teaching (Friend and Cook 1992). Challenges, roles, and readiness are formulated to strengthen the understanding of SET in implementing the co-teaching approach by understanding the components. These three aspects will enhance the teaching approach with the elements that are required according to the needs of teachers in Malaysia. The

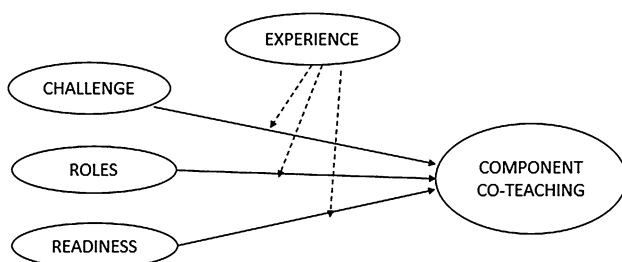


Fig. 1 Research model

hypotheses developed from the literature mentioned above are as follows:

H1 There is a positive relationship between the challenges of co-teaching component.

H2 There is a positive relationship between the roles of co-teaching component.

H3 There is a positive correlation between the willingness and co-teaching component.

Figure 1 also shows the moderator used in this study (experience), in other words the experience of the special education teacher. The hypotheses are as follows:

H4 Teacher's experience has a positive effect on the relationship between challenges and the co-teaching component.

H5 Teacher's experience has a positive effect on the relationship between the roles and the co-teaching component.

H6 Teacher's experience has a positive effect on the relationship between readiness and the co-teaching component.

Method

Sample

This quantitative study was conducted in Malaysia where the purposive sampling chose about 300 purposive respondents. The respondents were SETs from different backgrounds and teach the Integration Program of Special Education in secondary school. A total of 34 schools participated from 14 states. Data collection was done by distributing questionnaires to schools identified by MOE. From 300 sets of questionnaires distributed, 270 sets were returned but only 240 sets accounted as respondents in which in accordance with the sample size required for the structural equation modelling (SEM) (i.e. a minimum of 10 respondents for each item in the survey instrument) (Chin 1998). This sample size also fulfilled the required sample size of 270 respondents which considered 90 % confident level, standard deviation of 0.5, and ± 5 % margin of error (Bulpitt 1987). The rest 30 sets cannot be accepted because the sets did not meet the criteria. Table 1 represents the demographic data of the respondents.

Instrument

The instrument was developed by the researchers using a 5-point Likert scale of SD (strongly disagree), D (disagree),

Table 1 Respondent' profile

Demographic characteristic	Frequency	Percentage
Sex		
Male	60	25.0
Female	180	75.0
Race		
Malay	205	85.4
Chinese	10	4.2
Indian	22	9.02
Others	3	1.03
Experience		
1–8 Years	113	47.1
9–16 Years	69	28.7
17–22 Years	58	24.2
Academic		
PhD	2	0.8
Master	26	10.8
Degree	192	80.0
Diploma	16	6.7
Certificate	4	1.7
Position		
Administrator	103	42.9
Teacher	137	57.1
Training		
Yes	135	56.3
No	105	43.7

N (neither agree nor disagree), A (agree), and SA (strongly agree). This survey instrument was subjected to exploratory factor analysis (EFA) and validation process in 3 stages: test, retest, and pilot test. The pilot test Cronbach's alpha for the instrument, challenges, component, readiness, and roles was 0.818, 0.854, 0.720, 0.888, and 0.808, respectively. The items survey was constructed from the literature written by Friend (2008a, b). The questionnaire was divided into two parts: Section A and Section B. Section A (demography) consisted six questions (gender, race, experience, academic, position, and exercise), while Section B comprised of 27 questions which were divided into four fractions: components (5 questions), challenges (7 questions), roles (8 questions), and willingness (7 questions).

Data analysis

This study used IBM SPSS 21.0 to process the descriptive statistics and reliability analysis of the data collected and assessed the demographic profile of the sample and the internal consistency constructed. As mentioned by Anderson and Gerbing (1988), this study assessed the properties

of measurement scales for convergent validity and discriminant validity and constructed the composite reliability by confirmatory factor analysis (CFA) followed by the application of structural equation modelling (SEM) to test the hypotheses. Partial least squares (PLS) was based on SEM. SEM was used in this study to verify the path relationships of challenges, roles, readiness, and the component of co-teaching. PLS is a well-established technique for estimating path coefficients in structural models and has been widely used in various research studies (Ali and Amin 2014). The PLS technique has become increasingly popular in education research as well as social sciences research. Moreover, it was generally the trend in the last decade because of its ability to model latent constructs under the condition of non-normality and small–medium sample sizes (Chin 1998).

Results

Measurement model

In this study, model measurements were evaluated by examining the outer loadings, CR, average variance extracted (AVE), convergent validity, and discriminant validity. Firstly, the model measurement was tested for convergent validity. This was assessed through factor loadings, CR, and AVE (Hair et al. 2006). According to Chin (1998), loading items must be more than 0.6; then, it will be considered as the recommended value (refer to Table 2). The result in this study shown all constructs are accepted because the AVE value range is between (0.617) and (0.733). For CR values, the recommended value exceeds 0.7 (Hair et al. 2006), and this study shows the range is between (0.889) and (0.942). While AVE reflects the overall amount of variance in the indicators accounted for by the latent construct, the recommended value exceeds 0.5 (Hair et al. 2006). However, there were two rejected items P1 and R6 in the condition due to low factor loading.

Table 3 shows the discriminant validity for this study. According to Ramayah et al. (2013), the low correlations between the measure of interest and the measure of other constructs indicated good discriminant validity. Table 3 shows that the square root of AVE (diagonal values) of each construct is larger than its corresponding correlation coefficients, indicating adequate discriminant validity (Fornell Fornell and Larcker 1981). Moreover, a comparison of the loadings across the columns in Table 4 also indicates that each indicator's loading on its own construct is, in all cases, higher than all cross-loadings with other constructs. Thus, the results indicated discriminant validity between all constructs based on the cross-loadings criterion (Ali et al. 2015).

Table 2 Validity and reliability for constructs

	Outer loadings	AVE	CR
<i>Challenges</i>		0.704	0.942
C1—Time management	0.935		
C2—Time allocation	0.953		
C3—Discussion between teachers	0.787		
C4—Systematic schedule	0.817		
C5—Discussion with administrator	0.955		
C6—Financial allocation	0.684		
C7—Class size	0.691		
<i>Components</i>		0.617	0.889
K1—Philosophy	0.788		
K2—Personal qualities	0.780		
K3—Professional qualities	0.849		
K4—Classroom Dynamics	0.749		
K5—External support	0.757		
<i>Readiness</i>		0.636	0.923
P1—Sharing responsibility	0.739		
P2—Communication	0.926		
P4—Workload	0.815		
P5—Adaptation on environment	0.784		
P6—Student record	0.925		
P7—Subject mastery	0.929		
<i>Roles</i>		0.733	0.942
R1—Motivation	0.900		
R2—Facilitator	0.833		
R3—Model selection	0.773		
R4—Discussion session	0.610		
R5—Teachers options	0.896		
R7—Weight content	0.836		
R8—Student activity	0.691		

P3 and R6 were deleted due to low factor loading

Table 3 Discriminant validity (inter-correlations) of variable constructs

	Challenges	Component	Readiness	Roles
Challenges	0.839			
Component	0.754	0.785		
Readiness	0.842	0.763	0.798	
Roles	0.732	0.744	0.923	0.856

Note: Diagonal values represent the square root of the AVE, while off-diagonal values represent the correlations

Table 3 shows the results of testing the discriminant validity of the measures sales. The elements of the diagonal matrix represent the square roots of the AVEs for challenges (0.839), component (0.785), readiness (0.798), and roles (0.856). Hence, in this study, the off-diagonal elements in the corresponding row and column supported the

Table 4 Cross-loadings

	Challenges	Component	Readiness	Roles
C1	0.935	0.757	0.635	0.747
C2	0.953	0.759	0.645	0.771
C3	0.787	0.502	0.554	0.660
C4	0.817	0.604	0.619	0.710
C5	0.955	0.744	0.640	0.768
C6	0.684	0.462	0.574	0.619
C7	0.691	0.503	0.674	0.684
K1	0.513	0.788	0.657	0.603
K2	0.408	0.780	0.484	0.489
K3	0.496	0.849	0.612	0.595
K4	0.366	0.749	0.447	0.427
K5	0.935	0.757	0.635	0.747
P1	0.588	0.512	0.739	0.827
P2	0.679	0.638	0.926	0.889
P4	0.611	0.693	0.815	0.658
P5	0.550	0.674	0.784	0.641
P6	0.671	0.625	0.925	0.886
P7	0.653	0.645	0.929	0.867
R1	0.688	0.647	0.930	0.900
R2	0.601	0.560	0.735	0.833
R3	0.952	0.761	0.645	0.773
R4	0.480	0.420	0.555	0.610
R7	0.685	0.640	0.919	0.896
R8	0.603	0.546	0.735	0.836

discriminant validity of the co-teaching approach. A comparison can be shown in Table 4 whereas it all indicators loading are constructed higher than all cases in by its constructs. The results are indicated as discriminant validity between all constructs based on the cross-loading criterion.

Structural model result

As discussed previously, the evaluation of model measurement of few items will be considered. The consideration was suggested by many researchers includes outer loadings, composite reliability, average variance extracted (AVE = convergent validity), and discriminant validity. This was assessed through factor loadings, composite reliability (CR), and average extracted (AVE) (Hair et al. 2013). Figure 2 is the structural model results of the study.

Data obtained through bootstrapping procedure showed a significant correlation (0.061) between the teachers’ readiness and the co-teaching component. These findings demonstrated that the readiness of the factors contributed to the successful implementation of co-

teaching rather than the teacher’s role (3.065), while the challenges showed significant relation (5.605) with the co-teaching component. Thus, the factors contributing to the success of co-teaching should be given attention in future research.

Hypothesis testing

After the bootstrapping procedure, the results of the three hypotheses showed H1, H2, and H3 are supported.

Moderation analysis

The next analysis is looking at the moderating analysis in which as said by Ramayah et al. (2013) a moderator variable can be described as a third variable that changes the relationship between the independent variable and the dependent variable. In this study, element of experience is the moderator. In this study changes affect between experience to challenges, experience to roles and experience to readiness to component of co-teaching are been measured. After the calculation of R² values and the effect size (f²) are measured, experience as moderation has been measured. Table 5 shows the result of moderator analysis.

Results of the moderator analysis

After the bootstrapping procedure, the result of moderator analysis showed all hypotheses are supported. This is meant teacher’s experience have reconfirmed the prediction of study whereas it is important to show that an experience is not important to develop well believed in the implementation of co-teaching. Table 6 below shows the result of moderator hypotheses of this study.

Discussion

Based on the data obtained, there are many possible discussions related to the implementation of co-teaching as a new approach for SET in Malaysia. The findings on the teacher ratio adjustment in the environment were in accordance with the opinion by Friend and Cook (1992) regarding the challenges faced by teachers in running lessons together. Similarly, Murawski and Dieker (2008) stated that the adjustment to the new environment requires the teachers’ teaching time management. A discussion by Brownell et al. (2012) showed similar findings in terms of scheduling and was supported by Walter-Thomas et al. (1997) who stated the need for holding discussions with teachers’ assistant and more teachers need more time to

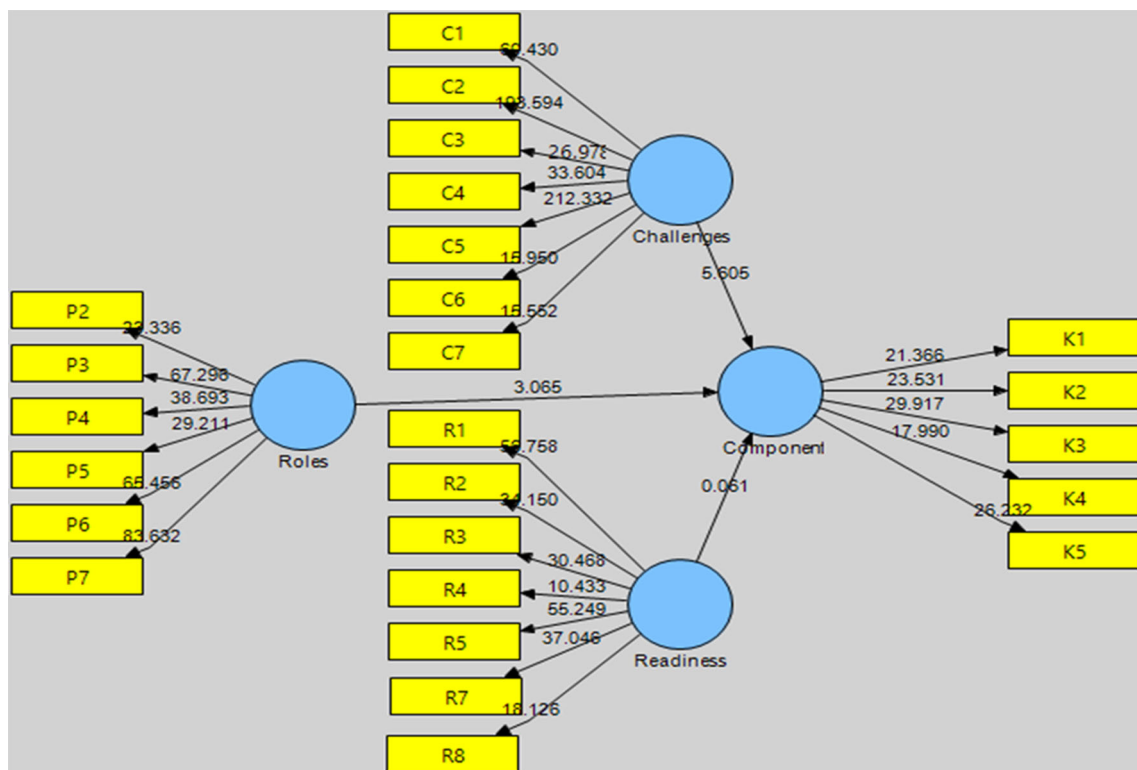
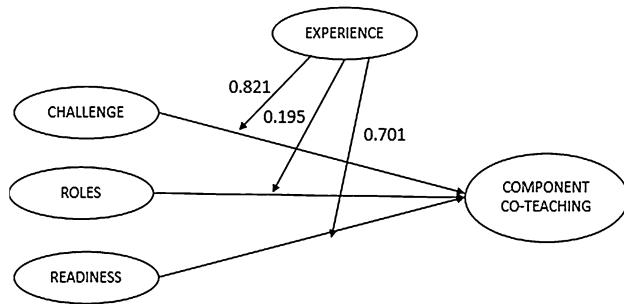


Fig. 2 Structural model results

Table 5 Hypotheses testing

Hypotheses	Relationship	Std. beta	Std. error	<i>t</i> value	Decision
H1	Challenges → component	0.449	0.080	5.605**	Supported
H2	Readiness → component	0.010	0.158	0.061*	Unsupported
H3	Roles → component	0.407	0.133	3.065**	Supported

** $p > 0.01$; * $p > 0.05$

**Fig. 3** Moderation analysis

design a model with more appropriate teaching techniques. Teachers in special education field also should take a responsibility and fidelity between them because in co-teaching, understanding of style of teaching is important. Otherwise, practices such as implementation of model in co-teaching are about sharing responsibility. It is an intervention as mentioned by McKenna et al. (2014) because it enables teachers to practise intervention in line with student interest. In this study, it is important for teachers to plan their lessons together and sharing their opinions about the model should be performed in the sharing classroom. Co-teaching practice can be enhanced if the teaching strategies and approaches are implemented with fidelity because students' performance will be enhanced, especially for the autistic students and the weak performance student.

Hypotheses established showed that there was positive relationship between the challenges of co-teaching component moderated by experiences of teaching. This suggested that this teaching technique is a new approach to the admission of teachers at an early stage and they require more disclosure concerning the implementation. According to a study conducted by Scruggs et al. (2007), there were constraints and challenges in the early stage of teaching together. However, the moderator used to form hypotheses rejected the aspects of the experience that is used as a factor to support challenges. This problem occurred because the improper experiences rely on the challenges, and the challenges will form experience.

There were a lot of discussions regarding the teacher ratio readiness in conducting lessons by Ali and Amin (2014), Friend and Cook (1992), and Murawski and Dieker (2008). The discussions have many similarities

with the findings of this study. The aspect of readiness showed a positive value which means that the teachers are always working to prepare for the lessons together. This fact is also supported by Pijl (2007) particularly for shared responsibility, commitment, and the willingness to bear the additional tasks. The hypotheses also accept the findings that indicated a positive correlation between the readiness and co-teaching component. It was clearly shown that teachers are ready to prepare and understand the requirements listed in the co-teaching component that could be appreciated and understood. However, the moderator used in this study rejected the hypotheses made because experience showed no change in terms of readiness. In this study, the item of communication is related to the aspects of readiness. It means that teachers must have good communication skill (Murawski and Dieker 2008) and also need to influence SES to communicate with others. This means that new teachers can also serve as a co-teacher as they understand the needs and the values in co-teaching components.

The positive role of SET is crucial for the success of co-teaching approach as described by Friend (2008a, b) and Murawski and Dieker (2008) who showed that co-teaching can be achieved by teachers' determination. Teachers need to motivate students because they need to play the role as facilitators. In this study, the active involvement of teachers in the classroom was proven by the acquisition of the CV (0.859), which supports the hypotheses made can show that there is a positive relationship between the roles of a teacher as the co-teaching component. However, the findings in this study suggested a rejection of the hypotheses that involve the experience as a mediator. Experience cannot be used as a measurement of the teachers' role in improving the acceptance of the co-teaching approach. Teachers must play an active role, provide guidance, and raise awareness about the need to provide services to students.

The finding of this research has implication for practice of special education and pedagogy in general teaching. The implementation of co-teaching in inclusive classes can help the crowded population. Implementation of two or more teachers would help classes with many students because more focus could be given. Although there are special education students included in inclusive classroom, mainstream students also benefited from this approach because

Table 6 Moderator hypotheses testing

Hypotheses	Relationship	Std. beta	Std. error	t value	Decision
H4	Challenges * experience → component	0.070	0.085	0.821	Unsupported
H5	Readiness * experience → Component	0.106	0.151	0.701	Unsupported
H6	Roles * experience → component	-0.025	0.129	0.195	Unsupported

** $p < 0.01$; * $p < 0.05$

special education teachers involved in co-teaching would help in designing and implementing teaching in the mainstream classroom.

Conclusion

The implementation of co-teaching approach requires a modification in thinking that involves many parties. This study will fill the available spaces in the inclusive implementation in Malaysia. Co-teaching is an alternative to fulfil the empty space in inclusive practice and yet to lead the involvement of SET in full inclusion setting as mentioned 75 % of inclusive practice in 2025 (Anuar and Rahim 2013). A constant effort is required to overcome the challenges in implementing co-teaching as described by Sukumaran (2014), and it must also be implemented with the help of legislation. The involvement and understanding of a teacher can be achieved by providing exposure through courses and training about the teaching components together as shown by previous studies (Zigmond 2003; Hallahan and Kauffman 2006; Friend 2011; Anuar and Rahim 2014) with respect to inclusion implementation. Besides, the aspects of readiness and the role of the teacher are made as a guide to prepare themselves to carry out responsibilities more effectively and efficiently. Results in this study can provide the information and knowledge with respect to the implementation of co-teaching in inclusive classes apart from the initial information for future studies that can provide better outcomes to co-teach in Malaysia.

Limitation

There were some limitations in this study. Firstly, the samples not include mainstream teacher. Secondly, this study only limited to some components of co-teaching by quantitative design and some issues need to be studied by qualitative research. Suggestion for the future study could be calculated on studying about the involvement of management personnel in school, officer in the state department, and also a decision maker in the ministry of education in Malaysia. Other suggestion is about the methodology, another study should be in mixed-method and the use of other analysis, such as SEM-AMOS, which

are known important to measure model of co-teaching should be a higher consideration in data analysis.

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