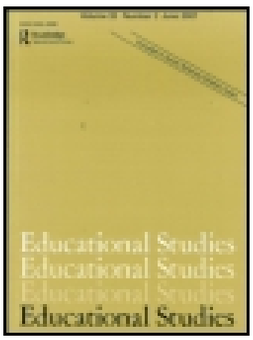

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ISSN: 0305-5698 (Print) 1465-3400 (Online) Journal homepage: https://www.tandfonline.com/loi/ceds20

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To cite this article: Pauline Swee Choo Goh, Esther T. Canrinus & Kung Teck Wong (2019): Preservice teachers' perspectives about coherence in their teacher education program, Educational Studies, DOI: 10.1080/03055698.2019.1584856

To link to this article: https://doi.org/10.1080/03055698.2019.1584856

EDUCATIONAL STUDIES
https://doi.org/10.1080/03055698.2019.1584856

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Preservice teachers' perspectives about coherence in their teacher education program

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ABSTRACT

While different countries have inherited different methods of teacher preparation, all countries aim for coherent programs, i.e. university-based courses are aligned with classroom practice. Yet, most published empirical research is based on data from western countries and focuses on a single feature of coherence (e.g., coherence between campus and internships). Our study examines a Malaysian teacher education university's effort to increase program coherence, investigating 446 preservice teachers' perceptions of various features of coherence. The preservice teachers represent six different specialist areas in the Bachelor of Education. Across these areas, the program was generally perceived as coherent. Observed differences between the areas, potentially stem from a dissonance among teacher educators about how to integrate theory and practice. Change efforts require time to implement and teacher educators discuss their beliefs about coherent teacher education to ensure coherent practices and to enable their preservice teachers to create a coherent understanding of teaching.

ARTICLE HISTORY
Received 18 July 2018
Accepted 16 February 2019

KEYWORDS
Program coherence; teacher education; preservice teachers; program coherence questionnaire

Introduction

Teacher education programs have long been criticized for being fragmented and disconnected from actual classroom practices (Flores 2016; Flores et al. 2014). In the western parts of the globe, studies have been performed to investigate the coherence or the construction of coherence, in teacher education programs (e.g.,Canrinus et al 2017; Joos, Liefländer, and Spörhase 2019; Samaras et al. 2016). These studies have shown that perceptions of coherence can impact learning outcomes (McQuillan, Welch, and Barnatt 2012), supports the construction of a teacher identity (Rogers 2011), and contributes to the transfer of knowledge to other contexts (Geraedts, Boersma, and Eijkelhof 2006). Yet, little is known about how teacher education programs in other parts of the world ensure coherence and whether preservice teachers perceive more coherence or opportunities to link theory and practice as a result (Goh and Canrinus forthcoming). Canrinus et. al (2017) and Canrinus, Klette, and Hammerness (2017) discussed that the focus within the teacher education program might influence the extent of perceived coherence by preservice teachers, for example, focusing more on teachers' autonomy than coherence.

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As such, it is relevant to further investigate how coherence is perceived in different contexts and different parts of the world.

Here, we draw upon data from preservice teachers from six specialist areas of the Bachelor of Education program within a teacher education university in Malaysia. This setting underwent a re-design of its teaching curriculum and started the implementation of this new curriculum in the first semester of 2010. We chose to ask preservice teachers about their perceived coherence because the overall aims of a curriculum can be quite "hidden", not because preservice teachers are meant to be "kept in the dark", but because there has been no opportunity for them to take an overall perspective on the curriculum (Canrinus et. al 2017; Goh, Yusuf, and Wong 2017; Goh and Yusuf 2017; Ikhsan and Norila 2016). Additionally, although a program may be restructured, "… the impact on student teachers is often different from what instructors or student teaching supervisors may imagine or wish" (Clift and Brady 2005, 331). In terms of self-report data, preservice teachers are the most reliable source of information about their program when compared to the university teachers or curriculum designers, as they are the ones experiencing the actual program (Naylor, Campbell-Evans, and Maloney 2015). The research questions guiding our study are:

(1) To what extent do the preservice teachers from the six specialist areas in their Bachelor of Education program perceive coherence in their program?
(2) What are the similarities and differences between the six specialist areas regarding the perceived coherence?

Literature review

Hammerness (2006) argues that effective teacher education is not only about competent university teachers, conducive learning environments or up to date technology and facilities, but more importantly, a teaching curriculum that has a clear vision of what it means to teach future teachers. A clear vision provides a teaching curriculum that is not only conceptually robust but also structurally sequenced with interrelated courses and closely aligned to the practical teaching experiences (Darling-Hammond 2014). Such a curriculum gives preservice teachers opportunities to connect theoretical concepts learnt at the campus and to enact and then link those theories to placement experiences in schools (Canrinus et. al 2017; Buchmann and Floden 1991). It is also considered to be coherent, which is a crucial aspect towards preparing quality teachers (Hammerness and Klette 2015).

Program coherence

Program coherence involves the extent to which the institution uses a common instructional framework (for example, regarding curriculum development, pedagogy, and assessment) including clear goals and strategies to guide learning (Hammerness and Klette 2015). Furthermore, a coherent program allows preservice teachers to critically examine the purposes of teaching and to enact and engage in practice (Canrinus et. al 2017; Canrinus et. al 2019). This allows them to see and reconcile theory and practice of learning through making and examining the interdependence of the different elements

within the teacher education program. Importantly, when preservice teachers perceive such coherence, it also enables them "to build upon their existing knowledge base and construct new knowledge and create opportunities to integrate what is offered" (Hammerness and Klette 2015, 4). Hammerness and Klette (2015) explain that when preservice teachers see that their learning has an alignment to coursework and is coherently designed towards their teaching experiences – then they are more likely to learn to make connections through their constructed new knowledge over the duration of their program. Thus, they are also more likely to make sense of what is learnt.

When the teacher preparation program is coherent, preservice teachers are able to see the purpose and connectedness of what they are learning. Buchmann and Floden (1991) advocate that in a program, "… what is 'coherent' is supposed to have direction, systematic relations, and intelligible meaning, thus conveying a sense of purpose, order, and intellectual as well as practical control" (4). Darling-Hammond (2006), Darling-Hammond (2014) cautions that a coherent program avoids burdening the students with disconnected ideas making it difficult for them to build linkages between theory and practice. She and Buchmann and Floden (1991) also caution against an overzealous attempt to ensure alignment to the point that preservice teachers feel "tied-down" and do not have opportunities to experiment, to analyse and to make linkages themselves. After all, learning to teach is also about enabling preservice teachers to conceptualize their own possibilities and develop their own skills of teaching over the period of their learning in the program. Tatto (1996) provides a succinct balance in that program coherence:

> … is a shared understanding among faculty and in the manner in which opportunities to learn have been arranged (organizationally, logistically) to achieve a common goal – that of educating professional teachers with the knowledge, skills, and dispositions necessary to more effectively teach diverse students (176).

There is a significant body of study indicating that when teachers align their curriculum to professional practice and professional engagement, it influences the impact teachers will have on student learning and development (e.g. McQuillan, Welch, and Barnatt 2012; Timperley 2005). Moreover, Geoghegan et al. (2004), find that preservice teachers who experienced a "grounding in positive self-efficacy through accessible, meaningful and relevant instruction" will successively "develop higher degrees of self-esteem and confidence (practitioner-efficacy) within their professional aspirations" (23). Similarly, when there is an integration of the knowledge obtained by the preservice teachers across their coursework, they feel confident to carry out the practical aspects of a teachers' work and gain more from their practical internships (König et al. 2017; Rahimah et al. 2014). Similarly, Goh and Canrinus (forthcoming) showed that a strong correlation exists between perceived program coherence and preservice teachers' self-efficacy. If we, teacher educators, wish to generate preservice teachers who are confident and are ready for the realities of a classroom, it seems important to provide preservice teachers with a coherent program (Goh and Blake 2015).

In the present study, we follow the definition of coherence used by Canrinus et. al (2017), who define coherence "as a process, in which all courses within a program, be it theoretical or practical, are aligned based on a clear vision of good teaching" (315). They furthermore included preservice teachers' "opportunities to make connections across

ideas and to build their own understanding" (315) in their investigation of coherence. Thus, based on this definition, alignment between courses at the campus, as well as between campus courses and internships should be experienced by preservice teachers. This alignment is established by various actors within the teacher education program, such as the preservice teachers and teacher educators.

This study's context

There have been criticisms and expressions of dissatisfaction of whether teacher education institutions are preparing preservice teachers who were ready to take full advantage of new paradigms they would face during a career in the classroom (World Bank: Worsening Obstacle to Malaysia's high-income hopes 2013). Malaysia is not spared in this criticism. More often than not, teachers have reported a disconnect between the skills and knowledge they learned in their teacher preparation program and the realities of their classroom environment (Goh, Yusuf, and Wong 2017). There are concerns among educational stakeholders whether Malaysian teacher education is preparing teachers who know much about theory but struggle to implement these theories in practice (Goh and Matthews 2011; Goh and Wong 2014). Therefore, the university, where this study was conducted, felt that it was time to ensure that Malaysian teachers would receive the kind of preparation they need to serve the new generation of Malaysian students. As such, there was a need to improve coherence in their teacher education curricula (Nurulhuda et al. 2016). Over the past few years, this university systematically implemented a re-designed curriculum. Efforts were put in to integrate university-based courses with preservice teachers' practical experiences in actual school settings. However, what is less known is how this re-designed curriculum has benefited the preservice teachers. We argue that an investigation of preservice teachers' self-reported perspectives of their own learning is not only a useful way to reveal their thinking, but more importantly, help us, the teacher educators, better understand the nature of what they perceive as coherent between theory and practice. These preservice teachers are the ones immersed in the actual program and are generally considered to be a reliable source of information when it comes to self-report data (Raudenbush 2008).

Method

The teacher education university

Data from this study comes from a teacher education university in Malaysia which offers a 4-year Bachelor of Education degree program (eight semesters). The program combines pedagogical and practical studies with a major sequence in the academic discipline of education designed to produce well-qualified secondary school teachers (to teach pupils aged between 13 and 17 years old). The program has been restructured in 2010 and this included as a more coordinated and sequenced balance of course work, integrated school observations, and one 16-week practicum. Over the last few years, the university systematically implemented these changes in its program.

For ease of analysis, we combined the different specialist areas in the Bachelor of Education degree program into six main categories (see Table 1 for these categories). For example, preservice teachers with majors in Business, Accounting or Economy are

Table 1. Distribution across the six specialist areas.

Specialist areas	Participants	Female
Business	54	91% (49)
Vocational	67	89% (60)
Humanities	175	77% (135)
Sciences/Maths	58	91% (53)
Languages	21	71% (15)
Special Education	71	90% (64)
TOTAL	**446**	

grouped under "Business". Teachers combined into "Vocational" are those preservice teachers prepared to teach technical and vocational subjects offered in vocational schools such as automation and machination, agricultural science, home economics, electric and electrical engineering. For those who are being prepared to teach History, Geography or Malaysian Studies, we created the category "Humanities" while those with majors in Physics, Chemistry, Biology, General Science or Mathematics are categorized under "Sciences/Maths". The category "Languages" includes those preservice teachers who are being prepared to teach English, Mandarin, Tamil or Arabic languages. "Special Education" is a specialized area where preservice teachers are taught to teach children and youth with a variety of disabilities. The ratio of content courses, foundation courses, methods and approaches courses, the assigned readings and in-class coverage are quite similar across each specialist area. The practicum is in the seventh semester followed by reflective learning in their final semester.

Sample and data collection

A total of 446 preservice teachers, with a mean age of 24 (SD = 0.88, Range: 22–29 years), distributed across the six specialist areas voluntarily participated in the study (Table 1 shows the distribution). Data were collected in the eighth semester when the preservice teachers have returned to the campus after their 16-week practicum. The authors or a research assistant collected the data in the preservice teachers' obligatory classes. Since the data were collected in the preservice teachers' compulsory classes, the response rate was almost 100% and only in rare circumstances, individual preservice teachers felt they did not want to participate and therefore left the classroom. Ethical approval to conduct the study was obtained from two review boards that were given detailed information on data collection procedure.

Instrument

The perception of program coherence questionnaire used in this study was adapted from the instrument used in the Coherence and Assignment Study in Teacher Education project (CATE) (Hammerness, Klette, and Bergem 2014). Here, we focused on 17 items which assessed the extent to which preservice teachers perceived there was coherence between campus courses and coherence between campus courses and their practicum. Since it would also be useful to know whether the new restructured curriculum provided opportunities for preservice teachers to make connections among their courses, this was also included in the items.

The 17 items were translated to the national language, the *Bahasa Melayu* (Malay Language), and modified to adapt the language and certain words of the questionnaire to

suit the preservice teachers from the university in which the study was conducted as i) all courses in the university were in the national language; and ii) certain words such as "K-12 classroom" were changed to "classroom" to better reflect the context of the schooling terms used in Malaysia; and the words "field experiences" were changed to "practicum" as this was a more familiar word used in the university. The questionnaire was then back-translated into English for verification by two independent professional translators. A group of 20 preservice teachers, who were not part of the final participants, were given the translated questionnaire as a pilot. There were no misleading words or sentences and the preservice teachers were able to understand the requirements of each of the items within the questionnaire. Items were rated on a 4-point Likert scale ranging from 1: none to 4: extensive opportunity and 1: strongly disagree to 4: strongly agree. The interpretation of the factor structure of the 17 items was conducted through a principal component analysis with a varimax rotation. Three factors emerged which explained 51.00% of the variance (see Table 2 for the factor structure).

The first factor (five items) named "Perceived Opportunities to Link Theory to Practice" explained 18.41% of the variance and the internal consistency was considered good with Cronbach's Alpha value of 0.82. The items asked the preservice teachers if they, for example, had the opportunity to: "Connect ideas from one class to another in the same program" and "Connect ideas from one course to those in another".

Table 2. Items of the program coherence questionnaire*.

	Factors/Cronbach alpha			
Items	1	2	3	
Perceived Opportunities to Link Theory to Practice (5 items)				
Learn about the vision of good teaching that your teacher education promotes.	.68			0.86
Connect ideas from one class to another in the same program.	.79			
Connect ideas from one course to those in another.	.70			
Trace my own trajectory – reflect upon the ways your own understanding of teaching and learning was developing.	.70			
Make connections between educational theory and the actual classroom teaching I am engaged in.	.72			
	.			
Perceived Coherence between Courses (7 items)				
The program articulated views about teaching and learning across the program courses.		0.46		0.82
I heard similar views about teaching and learning across the program courses.		0.45		
My courses within the teacher education program seemed to be intended to build an understanding over time.		0.70		
When ideas or readings were repeated in my teacher education program, they were elaborated/treated more deeply.		0.68		
I saw connections between ideas, and concepts across the teacher education program.		0.42		
My practicum allowed me to try out the theories, strategies and techniques I was learning in my classes at the teacher education program.		0.63		
What I learned in my courses reflects what I observed in my practicum.		.0.57		
		.		
Perceived Coherence between Courses and the Practicum (5 items)				
The faculty was knowledgeable about the program as a whole.			0.51	0.80
In my practicum, I observed teachers using the same theories, strategies and techniques I was learning about in my courses at the teacher education program.			0.68	
The faculty made explicit references to other courses.			0.71	
The faculty was knowledgeable about what I was required to do in my practicum.			.0.71	
The faculty was knowledgeable about the quality and nature of my practicum.			.0.73	
Eigenvalue	18.41	16.33	16.08	
Cumulative percentage explained variance	18.41	34.74	51.00	

*The items were adapted from the CATE project. Permission was granted from the original author, see www.tinyurl.com/CATEuio.

The second factor was called "Perceived Coherence between Courses" (seven items). It also had reasonably good internal consistency (Cronbach's Alpha of 0.77) and it explained 16.33% of the variance. Examples of the items for this factor are: "The program articulated a clear vision of teaching and learning" and "I heard similar views about teaching and learning across the program courses".

The third factor was named "Perceived Coherence between Courses and the Practicum" (five items), it explained 16.08% of the variance, and had a Cronbach's Alpha of 0.77, which was also considered good. Example items are "The faculty was knowledgeable about the program as a whole" and "In my practicum, I observed teachers using the same theories, strategies and techniques I was learning about in my courses at the teacher education program".

Analyses

To answer the first research question, descriptive statistics were used. To determine the similarities and differences between the six specialist areas, an analysis of variance (ANOVA) was conducted. Levene's test for equality of variance revealed unequal variance for the six specialist areas for the factor "Perceived Opportunities to Link Theory to Practice" ($F = 2.96$; $p < 0.01$) and thus, showed a violation of the assumption of the F-test for ANOVA (Field 2005). Therefore, we used Welch F and in the post hoc tests, we used Games Howell.

Findings

Perceived coherence

In the six specialist areas, preservice teachers appear to have similar perceptions of the coherence of their teacher education program. Table 3 shows the mean scores and standard deviations of each factor for each specialist area. To give the readers an impression of the patterns within each specialist area, we also present these data in Figure 1. On a factor level and across all six specialist areas, preservice teachers perceive that they are provided with satisfactory opportunities to connect ideas from one course to another ($M = 3.02$, $SD = 0.55$) and that there is coherence between the different courses they take under the same program ($M = 3.25$, $SD = 0.37$). Thus, what they learn in one course is perceived to reflect what they learned in another course. Preservice teachers furthermore seem to agree that their courses within the teacher education program are intended to build their understanding over time. Also, preservice teachers perceive a reasonable amount of alignment between their courses at the university and

Table 3. Mean scores of each specialist areas on the three factors of the program coherence.

	Perceived opportunities to link theory to practice	Perceived coherence between courses	Perceived coherence between courses and the practicum
Specialist area			
Business ($n = 54$)	3.17 (0.55)	3.26 (0.35)	3.09 (0.44)
Vocational ($n = 67$)	2.95 (0.53)	3.23 (0.37)	3.14 (0.41)
Humanities ($n = 175$)	2.98 (0.60)	3.23 (0.38)	3.07 (0.51)
Sciences/Maths ($n = 58$)	3.06 (0.32)	3.19 (0.35)	3.10 (0.39)
Languages ($n = 21$)	2.67 (0.53)	2.93 (0.37)	2.67 (0.59)
Special Education ($n = 71$)	3.14 (0.52)	3.41 (0.33)	3.11 (0.39)
Total ($n = 446$)	3.02 (0.55)	3.25 (0.37)	3.10 (0.47)

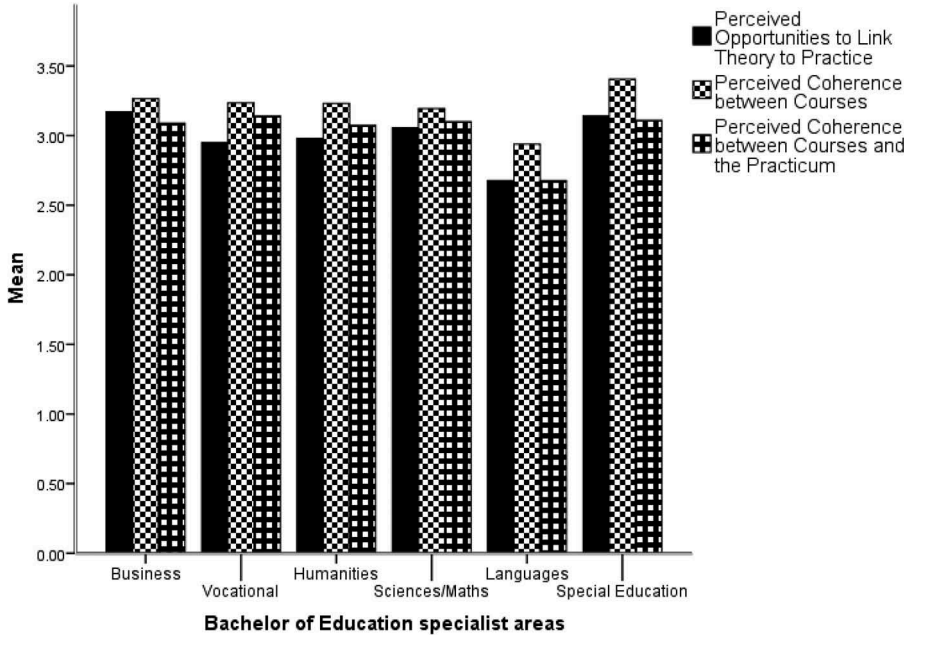

Figure 1. Bachelor of education specialist areas and its mean score.

their practicum (M= 3.10; SD= 0.47). They agree to statements saying that during their practicum, the teachers in the schools are also using the same theories, strategies and techniques they learnt about in their courses at the campus.

Similarities and differences among the six specialist areas

Although no one particular specialist area has the highest ratings for all three factors, the preservice teachers in Business and in Special Education perceive the most opportunities to link theory to practice (M= 3.17, SD= 0.55 and M= 3.14, SD= 0.52, respectively) and also perceive greatest coherence between their courses (M= 3.26, SD= 0.35 and M= 3.41, SD= 0.33, respectively). The highest rating for the perceived coherence between courses and the practicum is reported by the Vocational specialist preservice teachers (M= 3.14, SD= 0.41). Similar ratings are reported across the other specialist areas except for the Languages. In fact, preservice teachers from the Languages specialist area have the lowest rating in all three factors (see also Figure 1).

The findings from the ANOVA indicated that preservice teachers from the different specialist areas differed significantly on all three factors: "Opportunity to link theory to practice" (Welch F (5, 123.50) = 3.76, p < 0.01); "Perceived coherence between courses" (Welch F (5,121.60) = 6.37, p< 0.001); and "Perceived coherence between courses and the practicum" (Welch F (5,121.45) = 2.32, p< 0.05). Table 4 shows the differences between all specialist areas.

The Languages preservice teachers perceived to have the least opportunity to link theory to practice (M= 2.67, SD= 0.53) and this perception is significantly lower than the preservice teachers in the Business ($M_{difference}$= 0.50, SD= 0.13, p< 0.05) and the Special Education

Table 4. Post hoc comparison of the specialist areas on all three coherence factors.

Specialist area	Against other specialist areas	Perceived opportunities to link theory to practice	Perceived coherence between courses	Perceived coherence between courses and the practicum
Business	Vocational	0.22 (0.09)	0.30 (0.06)	−0.05 (0.07)
	Humanities	0.19 (0.08)	0.04 (0.05)	0.02 (0.07)
	Sciences/Maths	0.12 (0.08)	0.07 (0.06)	−0.01 (0.07)
	Languages	0.50* (0.13)	0.33*(0.09)	0.41 (0.14)
	Special Education	0.03 (0.09)	−0.14 (0.06)	−0.02 (0.08)
Vocational	Business	−0.22 (0.09)	−0.30 (0.06)	0.05 (0.07)
	Humanities	−0.03 (0.07)	0.01 (0.05)	0.07 (0.06)
	Sciences/Maths	−0.11 (0.08)	0.04 (0.06)	0.04 (0.07)
	Languages	0.27 (0.13)	0.30* (0.09)	0.46* (0.14)
	Special Education	−0.19 (0.08)	−0.17 (0.06)	0.03 (0.06)
Humanities	Business	−0.19 (0.08)	−0.03 (0.05)	0.02 (0.07)
	Vocational	0.03 (0.07)	0.01 (0.05)	0.07 (0.06)
	Sciences/Maths	−0.08 (0.06)	−0.04 (0.05)	−0.03 (0.06)
	Languages	0.30 (0.12)	0.30* (0.08)	0.40 (0.13)
	Special Education	−0.16 (0.07)	−0.18* (0.05)	−0.04 (0.06)
Sciences/Maths	Business	−0.12 (0.08)	−0.07 (0.06)	0.01 (0.07)
	Vocational	0.11 (0.08)	−0.04 (0.06)	−0.04 (0.07)
	Humanities	0.08 (0.06)	−0.04 (0.05)	0.03 (0.06)
	Languages	0.38 (0.12)	0.26 (0.09)	0.42* (0.14)
	Special Education	−0.08 (0.07)	−0.21* (0.06)	−0.01 (0.06)
Languages	Business	−0.50* (0.13)	−0.33* (0.09)	0.41 (0.14)
	Vocational	−0.27 (0.13)	−0.30* (0.09)	0.46* (0.14)
	Humanities	−0.30 (0.12)	−0.29* (0.08)	0.40 (0.13)
	Sciences/Maths	−0.38 (0.12)	−0.26 (0.09)	0.42* (0.14)
	Special Education	−0.46* (0.13)	−0.47* (0.09)	−0.43* (0.14)
Special Education	Business	−0.03 (0.09)	0.14 (0.06)	−0.02 (0.08)
	Vocational	0.19 (0.08)	0.17 (0.06)	0.03 (0.06)
	Humanities	0.16 (0.07)	0.18* (0.05)	−0.04 (0.06)
	Sciences/Maths	0.09 (0.07)	0.21* (0.06)	−0.01 (0.06)
	Languages	0.46* (0.13)	0.47* (0.09)	−0.43* (0.14)

* $p < 0.05$.

preservice teachers ($M_{difference} = 0.46$, $SD = 0.13$, $p < 0.05$). No significant differences with the other areas were observed. Thus, these preservice teachers perceive more often than Business and Special Education preservice teachers that there are different views from one course to another course in the same program or that there are less connections of ideas among their courses. They also perceive fewer connections between educational theory and the actual classroom teaching compared to preservice teachers in the Business and Special Education areas.

The data for perceived coherence between courses show that the preservice teachers from the Languages area again perceive the least coherence ($M = 2.93$, $SD = 0.37$). This implies that they perceived the least coherence between their university courses in the program and see fewer connections in the ideas, reading and concepts across their courses. The rating is significantly lower compared to preservice teachers from the Business ($M_{difference} = 0.33$, $SD = 0.09$; $p < 0.05$), Vocational ($M_{difference} = 0.30$; $SD = 0.09$; $p < 0.05$), Humanities ($M_{difference} = 0.29$, $SD = 0.08$, $p < 0.05$) and the Special Education ($M_{difference} = 0.47$, $SD = 0.09$; $p < 0.05$). The other two significant differences we observed for this factor were related to the Special Education preservice teachers. These teachers perceived significantly more coherence between their courses than preservice teachers in the Sciences/Maths ($M_{difference} = 0.21$; $SD = 0.06$; $p < 0.05$) and Humanities ($M_{difference} = 0.18$; $SD = 0.05$; $p < 0.05$).

The preservice teachers report fairly similar ratings for all specialist areas in the perceived coherence between courses and the practicum. However, again, the Languages preservice teachers' view that their courses have the least coherence with their practicum. These preservice teachers agree the least with statements saying that their faculty was knowledgeable about the program as a whole or that during their practicum, the teachers in the schools were using the same theories, strategies and techniques that they were taught at the teacher education program. Their ratings are significantly lower than those preservice teachers from the Vocational ($M_{difference}$= 0.46, SD = 0.14, p< 0.05), Special Education ($M_{difference}$= 0.43, SD= 0.14, p< 0.05) and the Sciences/Maths ($M_{difference}$= 0.42, SD= 0.14, p< 0.05).

Discussion

In this study, we investigated to what extent preservice teachers from six specialist areas perceived coherence in their Bachelor of Education program. Additionally, we inspected the similarities and differences between preservice teachers from the six specialist areas regarding their perceptions of coherence. We will start our discussion with the first question, followed by the discussion of our findings regarding the comparison of the specialist areas. Lastly, the limitations of our study and possible future avenues for investigation will be addressed.

Perceived coherence

Overall, the preservice teachers in our sample experienced a reasonable amount of coherence within their Bachelor of Education program. They perceived to be able to link general ideas and principles of good teaching and had opportunities to translate these ideas into classroom teaching. When asked about coherence between their courses, the preservice teachers report that there is reasonable coherence. They note that they have a fair amount of opportunity to connect ideas among courses and are satisfied with the coherence between their courses and the practicum.

Already in 1995, Leinhardt, McCarthy Young, and Merriman stated that coherence between courses is the "harmonious relationship" of different learning subjects for the purpose of assimilating "declarative knowledge and of conceptual aspects professional practice (402). The positive response to coherence between courses is uplifting, as coherence between courses is important for understanding complex educational content (Hatlevik 2014; O'Neill, Donnelly, and Fitzmaurice 2014). Each "course" is not a separate teaching entity but an amalgamation of a variety of qualities that is linked to another course, each having a close connection between rationale and objectives as well as between each other (Darling-Hammond 2014; Falkenberg, Goodnough, and MacDonald 2014). There is also a blending of teaching methods in order to help preservice teachers create coherence in their own learning. The whole teaching curriculum is viewed as a dynamic process rather than a final process with logical links to content, pedagogy and teaching objectives (Hammerness and Klette 2015).

The fact that preservice teachers are satisfied with the coherence between campus courses and their practicum is also heartening news for the university under study, as it suggests that the restructured curriculum prepares preservice teachers to be relatively ready and equipped for their first encounter with teaching. Learning through authentic field experiences which are aligned with the overall campus courses can give preservice teachers the opportunity to better

understand the uncertain, dynamic, complex, and multifaceted nature of today's schools (Capella-Santana 2000; Duarte and Reed 2004). Furthermore, being able "to see" the alignment between educational theories and applying it in a classroom influences preservice teachers' confidence towards their abilities as teachers and actually improves their practicum experience (Goh and Canrinus forthcoming; Cabaroglu 2014; König et al. 2017).

Preservice teachers should no longer be taught theory in the university in isolation to the actual work in the classroom. Practice is not just "putting theoretical ideas about how to teach… into practice in the field experience under the supervision of host professional" (Dillon et al. 2014, 970). Instead, learning to teach is about proper sequencing in the coursework based on theories of learning to teach; courses that align and intersect with each other and are planned into the learning; and these are interwoven with the preservice teachers' work in the classroom. More importantly, preservice teachers need to see the purpose and connectedness of what they are learning. How they learn to use what is learnt and align their accumulating knowledge is important to ensure the graduation of quality teachers (Darling-Hammond 2014).

The findings may also be perceived as positive as the perceiving the coherence within the instructional program can be cognitively demanding for preservice teachers. In our particular case, the preservice teachers might not have been used to connecting the various courses within their program. Therefore, sufficient opportunities to develop their skills in grasping the coherence could benefit to alleviating their struggle to create an understanding of their courses (Kennedy 2006). All too often, teacher educators tended to provide their preservice teachers with theories and principles of good teaching but omit providing them the opportunities to transfer these theories and principles into specific classroom practices (Goh and Blake 2015; Jenset, Klette, and Hammerness 2018). According to Falkenberg, Goodnough, and MacDonald (2014), when preservice teachers are given the opportunities to link campus courses or connect ideas between courses, it serves as a prelude to connect theory and practice. It also is an important foundation towards how preservice teachers make sense of new and complex ideas, theories and demands. Teacher educators can also assist their preservice teachers link theory to practice by modelling teaching and teaching approaches in the teacher education program (Korthagen, Loughran, and Russell 2006). Modelling by teacher educators show to preservice teachers the important linkage between theory and practice but also serve to promote the enactment of practice within teacher education (Canrinus et. al 2017).

The findings based on our sample of Malaysian preservice teachers are similar to the perceptions presented in the findings by Canrinus et. al (2017) and Canrinus, Klette, and Hammerness (2017). They investigated the perceived coherence of programs in, amongst others, the US, Chile, and Finland. Yet, the perceptions of coherence between courses and the practicum appear to be somewhat higher in our present sample. The samples used in the aforementioned studies did not include any Asian program. As mentioned in the introduction, including teacher education programs from the East into a comparison of international programs is informative to learn what specific features help to improve preservice teachers' perception of coherence between campus and their practicum. The present programs, and particularly the Business, Vocational, and Special Education programs, might offer some indications of effective program features to enhance coherence between campus and the practicum.

A comparison of the six specialist areas

Generally, the six specialist areas expressed to perceive a similar amount of coherence. For example, Business preservice teachers reported similar amounts of opportunities to link theory to practice, similar perceived coherence between courses and perceived similar coherence between their courses and the practicum as preservice teachers from the Vocational, Humanities, Sciences/Maths, and Special Education specialist areas. However, we also observed some significant differences. Firstly, Business and Special Education preservice teachers had significantly higher opportunity to link theory to practice when compared to the Language preservice teachers. Preservice teachers from the Special Education furthermore perceived significantly more coherence between courses compared to preservice teachers from the Humanities, the Sciences/Maths, and the Languages. Lastly, together with preservice teachers from the Vocational and the Sciences/Maths, preservice teachers from the Special Education also reported significantly more coherence between their courses and their practicum compared to the preservice teachers from the Languages.

The observed differences might be explained by teacher educators in the different areas focusing on different aspects of coherence. Some teacher educators may stress the importance of allowing their preservice teachers to have more opportunities to link theory to practice, while coherence between courses might be prioritized by other educators. According to Assaf, Garza, and Battle (2010), although teacher educators begin with the premise that the curriculum is coherent, in most teaching institutions (as in the university of this study), they are given a fair amount of flexibility to modify the formal curriculum. Therefore, teacher educators generally view the formal curriculum as amenable and adaptable as long as they strive for it to be a coherent whole. As insiders and gatekeepers to the profession, teacher educators play a pivotal role in influencing the practices related to teacher education (Bartolomé 2004) and their influence on teacher preparation must not be overlooked (MacDonald, Colville-Hall, and Smolen 2003). This strengthens the need for a shared vision as expressed by Hammerness and Klette (2015) and Darling-Hammond (2014). To construct and build up such a shared vision, teachers, researchers, administration, and policymakers might want to consider the more social aspects influencing changes in teaching and teacher education, as also previously called for by Moolenaar and Daly (2012).

Another explanation for the differences might be that teacher educators and preservice teachers could still be "feeling their way" with the new restructured curriculum. The data were collected while the university was undergoing their restructured program. In any restructuring process, there is always the challenge to commit to the new way of preparation, while at the same time balancing a heavy teaching load and other professional responsibilities. This may cause teacher educators to fall back on a more traditional view of teacher preparation which involves providing university courses about theory and then letting the schools provide the field setting for preservice teachers to put their theory to use (Dillon et al. 2014; Falkenberg, Goodnough, and MacDonald 2014). The work of accomplishing coherence must be seen as long term and an ongoing undertaking that requires support from the university. Indeed, change takes time. It is hard, if not impossible to set a time frame on implementing change, as it depends on features of the change agents as well, and all actors should be included in the process (cf. Porter 2005). It is not something that can be achieved overnight. Canrinus et. al (2019) also observed and discussed that the length of reform influence preservice

teachers' perceptions of their opportunities to enact practice in their campus courses. Teacher education administrators need to take this into account and provide the professional support necessary to ensure instructional program coherence and growth because "faculty members cannot be expected to develop commitment and competence on their own" (Irvine 2003, 43). Some form of professional development could also be arranged for teacher educators to explore their tensions and conflicts needed to change current practices and assumptions (Assaf, Garza, and Battle 2010).

Lastly, having a coherent program does not necessarily suggest that all teacher educators think the same. Instead, in trying to achieve program coherence, teacher educators must consider how they align their beliefs and practices and work together to conceptualize and organize how learning experiences for the preservice teachers are carried out (Assaf, Garza, and Battle 2010). Coherence in a teacher preparation program should not be viewed as a final outcome to achieve, but rather, a continuous reflective process that involves assessment and self-reflection to scaffold a program's coherence (Hammerness 2006). Similarly, if teacher educators hope to positively influence the success of their preservice teachers; then, they must always assess their own thinking and classroom practices to improve how they educate their future teachers (Goh and Blake 2015). As Cochran-Smith, Davis, and Fries (2004) suggest, "teacher educators themselves must engage in unflinching self-examination … in much the same way that they urge for teacher candidates" (956). Teacher educators must critically consider their beliefs about program coherence and understand how their perceptions filter their instruction and influence how their preservice teachers learn. As shown by Liou, Canrinus, and Daly (2019), teachers' beliefs influence their actions, particularly when related to the implementation of reform.

Limitations and further research

With this study, we provided the first data to support claims of improvement in a re-designed teacher education program in Malaysia. As such, we have added a new context into the growing knowledge base on coherence in teacher education programs. Nevertheless, there are some limitations to this study that should be noted. First, we obtained data from only one cohort of preservice teachers. Further research with additional cohorts and specialist areas would add to the body of knowledge about successful program re-design aimed at achieving program coherence.

Second, the results of this study have provided insights into program coherence as perceived by preservice teachers. Future research considering teacher educators' experiences with the re-designed curriculum, would shed an additional light on this issue. Furthermore, as our study has shown that preservice teachers from various specialist areas experience different amounts of coherence, it would be valuable to ask these teacher educators about support from their specialist faculties regarding creating coherence.

Third, although the sample size of 446 was considered sufficient, we would caution towards generalizing our findings to a larger population as only one teacher preparation institution was included in the study. Future studies could include a larger sample and, for example, include beginning teachers who have recently graduated from this re-designed program. Additionally and similar to Canrinus et. al (2017) and Canrinus, Klette, and Hammerness (2017), we suggest including other Asian teacher education institutions who

have reformed their curriculum, to compare and learn about successful efforts to develop a coherent program.

Conclusion

Teacher education programs across the globe strive for more coherence in their programs. Published empirical research on this topic is mainly based on data from Western countries (e.g., Joos, Liefländer, and Spörhase 2019; Samaras et al. 2016). With the present study, we have presented data from an Asian context and explored the success of a program redesign in Malaysia, aimed at more coherence. Although we observed differences in perceptions of coherence between different specialist areas, overall the surveyed preservice teachers considered their program to be coherent.

We have included both coherence between and within campus courses, as well as between campus courses and practicum experiences, whereas others have mainly focused on the latter (e.g., Samaras et al. 2016). Additionally, we specifically focused on the perspective of preservice teachers, as they are a reliable source of information and are the ones actually experiencing the re-designed curriculum (Naylor, Campbell-Evans, and Maloney 2015).

Our study may function as a point of departure for other scholars aiming to include countries from various parts of the world when investigating program coherence. It will also function as a starting point for further, longitudinal investigation of coherence in this specific program. Policy makers, program developers, and administration can use our findings to underline and understand the relevance of communication between various actors within teacher education programs. Such communication contributes to creating a coherent program and preservice teachers' coherent understanding of all aspects of teaching, be it theoretical or practical.

Acknowledgments

The first author is grateful to be awarded the Exploratory Research Grant Scheme from the Ministry of Higher Education, Malaysia, which has enabled the research to be carried out.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Exploratory Research Grant Scheme, Malaysia [2013-0087-107-22].

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References

Assaf, L. C., R. Garza, and J. Battle. 2010. "Multicultural Teacher Education: Examining the Perceptions, Practices, and Coherence in One Teacher Preparation Program." *Teacher Education Quarterly* 37 (2): 115–135.

Bartolomé, L. I. 2004. "Critical Pedagogy and Teacher Education: Radicalizing Prospective Teachers." *Teacher Education Quarterly* 31 (1): 97–122.

Buchmann, M., and R. E. Floden. 1991. "Programme Coherence in Teacher Education: A View from the USA." *Oxford Review of Education* 17 (1): 65–72. doi:10.1080/0305498910170105.

Cabaroglu, N. 2014. "Re-Visiting the Theory and Practice Gap through the Lens of Student Teacher Dilemmas." *Australian Journal of Teacher Education* 39 (2): 89–109. doi:10.14221/ajte.2014v39n2.10.

Canrinus, E. T., K. Klette, and K. Hammerness. 2017. "Diversity in Coherence: Strengths and Opportunities of Three Programs." *Journal of Teacher Education. Advance online publication*. doi: 10.1177/0022487117737305.

Canrinus, E. T., K. Klette, K. Hammerness, and O. K. Bergem. 2019. "Opportunities to Enact Practice in Campus Courses: Taking a Student Perspective." *Teachers and Teaching Theory and Practice* 25 (1): 110-124. doi: 10.1080/13540602.2018.1526171.

Canrinus, E.T., O. K. Bergem, K. Klette, and K. Hammerness. 2017. "Coherent Teacher Education Programmes: Taking a Student Perspective." *Journal of Curriculum Studies* 49 (3): 313-333. doi: 10.1080/00220272.2015.1124145.

Capella-Santana, N. 2000. "Voices of Teacher Candidates: Positive Changes in Multicultural Attitudes and Knowledge." *Journal of Educational Research* 96 (3): 182–190. doi:10.1080/00220670309598806.

Clift, R., and P. Brady. 2005. "Research on Methods Courses and Field Experiences." In *Studying Teacher Education: The Report of the AERA Panel on Research and Teacher Education"*, edited by M. Cochran-Smith and K. Zeichner, 309–424. Mahwah, NJ: Lawrence Erlbaum Associates.

Cochran-Smith, M., D. Davis, and K. Fries. 2004. "Multicultural Teacher Education: Research, Practice and Policy." In *Handbook of Research on Multicultural Education*, edited by J. Banks and C. Banks, 931–975. New York: MacMillan.

Darling-Hammond, L. 2006. *Powerful Teacher Education: Lessons from Exemplary Programs*. San Francisco, CA: Jossey-Bass.

Darling-Hammond, L. 2014. "Strengthening Clinical Preparation: The Holy Grail of Teacher Education." *Peabody Journal of Education* 89 (4): 547–561. doi:10.1080/0161956X.2014.939009.

Dillon, D., S. Bullock., K. O'Connor., A. Martin., T. Russell, and L. Thomas. 2014. "Place-Based Teacher Development: Placing Practicum Learning at the Heart of Pre-Service Teacher Education." In *Becoming Teacher: Sites for Teacher Development in Canadian Teacher Education*, edited by L. Thomas, 94–120. ON: Canadian Association for Teacher Education. Accessed 7 July 2017. https://www.researchgate.net/publication/292996225_Place-based_Teacher_Development_Placing_Practicum_Learning_at_the_Heart_of_Pre-service_Teacher_Education

Duarte, V., and T. Reed. 2004. "Learning to Teach in Urban Settings." *Childhood Education* 80 (1): 245–250. doi:10.1080/00094056.2004.10522807.

Falkenberg, T., K. Goodnough, and R. MacDonald. 2014. "Views on and Practices of Integrating Theory and Practice in Teacher Education Programs in Atlantic Canada." *Alberta Journal of Educational Research* 60 (2): 339–360.

Field, A. 2005. *Discovering Statistics Using SPSS*. London: Sage.

Flores, M. A. 2016. "Teacher Education Curriculum." In *International Handbook of Teacher Education*, edited by J. Loughran and M. L. Hamilton, 187–230. Singapore: Springer.

Flores, M. A., P. Santos, S. Fernandes, and D. Pereira. 2014. "Pre-Service Teachers' Views of Their Training: Key Issues to Sustain Quality Teacher Education." *Journal of Teacher Education for Sustainability* 16 (2): 39–53. doi:10.2478/jtes-2014-0010.

Geoghegan, N., D. Geoghegan., S. O'Neill, and R. White. 2004. "Preservice Early Childhood Teachers' Self-Efficacy, Teacher Preparedness and Facilitating Children's Learning of Concepts in Multiple Contexts." Paper presented at the Australian Association for Research in Education, Melbourne, November 28.

Geraedts, C., K. T. Boersma, and H. M. C. Eijkelhof. 2006. "Towards Coherent Science and Technology Education." *Journal of Curriculum Studies* 38 (1): 307–325. doi:10.1080/00220270500391589.

Goh, P. S., and B. Matthews. 2011. "Listening to The Concerns Of Student Teachers in Malaysia during Teaching Practice." *Australian Journal of Teacher Education* 36 (3): 12-23. doi: 10.14221/ajte.2011v36n3.2.

Goh, P. S. C., and D. Blake. 2015. "Teacher Preparation in Malaysia: Needed Changes." *Teaching in Higher Education* 20 (5): 469-480. doi: 10.1080/13562517.2015.1020780.

Goh, P. S. C., and E. T. Canrinus. forthcoming. "Preservice Teachers' Perception of Program Coherence and Its Relationship to Their Teaching Efficacy." Pertanika Journal of Social Science & Humanities

Goh, P. S. C., and K.T. Wong. 2014. "Beginning Teachers' Conceptions of Competency: Implications to Educational Policy and Teacher Education in Malaysia." *Educational Research for Policy and Practice* 13 (1): 65-79. doi: 10.1007/s10671-013-9147-3.

Goh, P. S. C, and Q. Yusuf. 2017. "Validation of The Malaysian Version of the Teacher Education Program Coherence Questionnaire." *Australian Journal Of Teacher Education* 42 (12): 42-59. doi: 10.14221/ajte.2017v42n12.3.

Goh, P. S. C., Q. Yusuf, and K. T. Wong. 2017. "Lived Experience: Perceptions of Competency of Novice Teachers." *International Journal of Instruction* 10 (1): 20-36. doi: 10.12973/iji.2017.1012a.

Hammerness, K. 2006. "From Coherence in Theory to Coherence in Practice." *Teachers College Record* 108 (7): 1241–1265. doi:10.1111/j.1467-9620.2006.00692.x.

Hammerness, K., and K. Klette. 2015. "Indicators of Quality in Teacher Education: Looking at Features of Teacher Education from an International Perspective." *International Perspectives on Education and Society* 27 (1): 239–277. doi:10.1108/S1479-367920140000027013.

Hammerness, K., K. Klette, and O. K. Bergem. 2014. "Coherence and Assignments in Teacher Education: Teacher Education Survey." Accessed 19 December 2018. https://www.uv.uio.no/ils/english/research/projects/cate/

Hatlevik, I. K. R. 2014. *Meaningful Coherence*. [Meningsfulle Sammenhenger]. Oslo, Norway: Allkopi.

Ikhsan, O., and M. S. Norila. 2016. "Relationship between Student Teachers' Achievement in Professional Education Courses and Their Achievement in Teaching Practices." *Journal of Research, Policy & Practice of Teachers & Teacher Education* 6 (2): 5–15.

Irvine, J. J. 2003. *Educating Teachers for Diversity: Seeing with a Cultural Eye*. New York: Teachers College Press.

Jenset, I. S., K. Klette, and K. Hammerness. 2018. "Grounding Teacher Education in Practice around the World: An Examination of Teacher Education Coursework in Teacher Education Programs in Finland, Norway, and the United States." *Journal of Teacher Education* 69 (2): 184–197. doi:10.1177/0022487117728248.

Joos, T. A., A. Liefländer, and U. Spörhase. 2019. "Student Perspective on Coherence in Teacher Training." [Studentische Sicht auf Kohärenz im Lehramtsstudium]. In *Coherence in Teacher*

Education [Kohärenz in Der Lehrerbildung], edited by K. Hellmann, J. Kreutz, M. Schwichow, and K. Zaki, 51–67. Wiesbaden: Springer.

Kennedy, M. M. 2006. "Knowledge and Vision in Teaching." *Journal of Teacher Education* 57 (3): 205–211. doi:10.1177/0022487105285639.

König, J., A. Bremerich-Vos, C. Buchholtz, S. Lammerding, S. Strauß, I. Fladung, and C. Schleiffer. 2017. "Modelling and Validating the Learning Opportunities of Preservice Language Teachers: On the Key Components of the Curriculum for Teacher Education." *European Journal of Teacher Education* 40 (3): 394–412. doi:10.1080/02619768.2017.1315398.

Korthagen, F., J. Loughran, and T. Russell. 2006. "Developing Fundamental Principles for Teacher Education Programs and Practices." *Teaching and Teacher Education* 22 (8): 1020–1041. doi:10.1016/j.tate.2006.04.022.

Leinhardt, G., K. McCarthy Young, and J. Merriman. 1995. "Integrating Professional Knowledge: The Theory of Practice and the Practice of Theory." *Learning and Instruction* 5 (4): 401–408. doi:10.1016/0959-4752(95)00025-9.

Liou, Y-H., E. T. Canrinus, and A. J. Daly. 2019. "Activating The Implementers: The Role of Organizational Expectations, Teacher Beliefs, and Motivation in Bringing about Reform." *Teaching and Teacher Education* 79: 60-72. doi: 10.1016/j.tate.2018.12.004.

MacDonald, S., S. Colville-Hall, and L. Smolen. 2003. "Program Ownership and the 'Transformative Agenda' in Colleges of Education: Teachers of Teachers Working Towards a More Equitable Society." *Multicultural Education* 10 (4): 7–14.

McQuillan, P. J., M. J. Welch, and J. Barnatt. 2012. "In Search of Coherence: "Inquiring" at Multiple Levels of a Teacher Education System." *Educational Action Research* 20 (4): 535–551. doi:10.1080/09650792.2012.727640.

Moolenaar, N. M., and A. J. Daly. 2012. "Social Networks in Education: Exploring the Social Side of the Reform Equation." *American Journal of Education* 119 (1): 1–6. doi:10.1086/667762.

Naylor, D. A., G. Campbell-Evans, and C. Maloney. 2015. "Learning to Teach: What Do Pre-Service Teachers Report." *Australian Journal of Teacher Education* 40 (11): 120–136. doi:10.14221/ajte.2015v40n11.7.

Nurulhuda, A. R., M. Azwani., M. T. Nor'ain, E. T. Ong, and A. Mazlini. 2016. "Validation of Teaching and Learning Guiding Principles Instrument for Malaysian Higher Learning Institutions." *Malaysian Journal of Learning and Instructions* 13 (2): 125–146.

O'Neill, G., R. Donnelly, and M. Fitzmaurice. 2014. "Supporting Programme Teams to Develop Sequencing in Higher Education Curricula." *International Journal for Academic Development* 19 (4): 268–280. doi:10.1080/1360144X.2013.867266.

Porter, B. E. 2005. "Time and Implementing Change." *British Journal of Educational Technology* 36 (6): 1063–1065. doi:10.1111/j.1467-8535.2005.00576.x.

Rahimah, J. I., R. Abu., H. Ismail, and A. Mat Rashid. 2014. "Teachers' Self-Efficacy in Teaching Family Life Education." *Pertanika Journal of Social Science & Humanities* 22 (3): 775–784.

Raudenbush, S. W. 2008. "Advancing Educational Policy by Advancing Research on Instruction." *American Educational Research Journal* 45 (1): 206–230. doi:10.3102/0002831207312905.

Rogers, G. 2011. "Learning to Learn and Learning to Teach: The Impact of Disciplinary Subject Study on Student-Teachers' Professional Identity." *Journal of Curriculum Studies* 43 (1): 249–268. doi:10.1080/00220272.2010.521262.

Samaras, A. P., T. J. Frank, M. A. Williams, E. Christopher, and W. H. Rodick III. 2016. "A Collective Self-Study to Improve Program Coherence of Clinical Experiences." *Studying Teacher Education* 12 (2): 170–187. doi:10.1080/17425964.2016.1192033.

Tatto, M. T. 1996. "Examining Values and Beliefs about Teaching Diverse Students: Understanding the Challenges for Teacher Education." *Educational Evaluation and Policy Analysis* 18 (2): 155–180. doi:10.3102/01623737018002155.

Timperley, H. S. 2005. "Distributed Leadership: Developing Theory from Practice." *Journal of Curriculum Studies* 37 (1): 395–420. doi:10.1080/00220270500038545.

World Bank: Worsening Obstacle to Malaysia's high-income hopes. 2013. "Malay Mail Online, December 11." *Malay Mail Online*. http://www.themalaymailonline.com/malaysia/article/world-bank-worsening-education-obstacle-to-malaysias-high-income-hopes