PERMODELAN FAKTOR-FAKTOR PENCAPAIAN SAINS TIMSS MALAYSIA 2011

oleh

MOHD ERFY BIN ISMAIL

Disertasi yang diserahkan untuk memenuhi keperluan bagi Ijazah Doktor Pendidikan

September 2015

PENGHARGAAN

Alhamdulillah, syukur saya panjatkan ke hadrat Allah S.W.T kerana dengan limpah dan kurniaNya yang telah mengurniakan semangat, kekuatan dan kesungguhan dalam menyempurnakan penyelidikan ini.

Di kesempatan ini juga, saya ingin merakamkan setinggi-tinggi penghargaan dan jutaan terima kasih tidak terhingga kepada penyelia saya, Dr. Mohd Ali Samsudin yang sentiasa memberi tunjuk ajar dan bimbingan sepanjang tempoh saya menjalankan penyelidikan ini. Saya memohon maaf sekiranya terdapat kekurangan dan kesilapan dari pihak saya. Semoga ilmu dan budi yang dicurahkan diberi ganjaran oleh Allah s.w.t.

Ucapan penghargaan dan terima kasih juga saya tujukan kepada semua pensyarah, staf dan rakan-rakan di PPIP, USM yang terlibat secara langsung atau tidak langsung dalam membantu saya menyiapkan kajian ini.

Seterusnya saya ucapkan setinggi-tinggi penghargaan kepada ayahanda dan bonda tercinta serta keluarga yang banyak memberi dorongan kepada saya bagi menyempurnakan pengajian ini. Terima kasih kepada isteri tercinta, Norliza Baharom kerana sentiasa mendoakan kejayaan dan memberikan semangat tidak berbelah bahagi.

Buat anak-anak yang disayangi, jadikanlah hasil kerja ini sebagai semangat dan dorongan untuk kalian terus berusaha mencapai kejayaan di masa akan datang. Semoga

Allah s.w.t sentiasa memberkati usaha kamu dalam menimba ilmu pengetahuan. InsyaAllah.

Seterusnya ucapan terima kasih ditujukan kepada semua rakan-rakan di FPTV, UTHM yang tidak jemu-jemu memberikan bantuan kepada saya dalam menyiapkan kajian ini. Akhir kata, semoga bantuan, tunjuk ajar dan dorongan dari semua pihak akan mendapat kerahmatan dan keberkatan serta balasan dari Allah s.w.t. Amin.

KANDUNGAN

BAB 5 : PERBINCANGAN DAN KESIMPULAN

SENARAI JADUAL

SENARAI RAJAH

SENARAI LAMPIRAN

BILANGAN LAMPIRAN

PERMODELAN FAKTOR-FAKTOR PENCAPAIAN SAINS TIMSS MALAYSIA 2011

ABSTRAK

Secara umumnya, TIMSS adalah suatu penilaian berskala besar dan projek penyelidikan yang dibentuk untuk mengukur tahap pencapaian pelajar gred ke-4 dan gred ke-8 dalam pendidikan matematik dan sains di peringkat antarabangsa. Kajian TIMSS dianjurkan oleh *International Association for the Evaluation of Educational Achievement* (IEA) serta dilaksanakan empat tahun sekali iaitu bermula pada tahun 1995, seterusnya pada tahun 1999, 2003, 2007 dan kini pada tahun 2011. Secara keseluruhannya pencapaian sains dalam TIMSS Malaysia adalah membimbangkan. Skor Malaysia berada di bawah skor purata TIMSS bermula TIMSS 2003. Justeru, kajian ini dijalankan bertujuan mengkaji sejauh mana konteks rumah, konteks bilik darjah dan konteks sekolah mempengaruhi pencapaian sains pelajar dalam TIMSS 2011 berdasarkan perbezaan kumpulan jantina. Kajian ini melibatkan seramai 5733 responden daripada 180 buah sekolah menengah di Malaysia berdasarkan data TIMSS 2011. Persampelan rawak menggunakan teknik persampelan kluster berstrata dua peringkat dilakukan dalam memilih sampel kajian. Kajian ini turut mencadang sebuah model yang mengandungi dua konstruk eksogenus iaitu penglibatan ibu bapa dan disiplin iklim sekolah serta dua konstruk endogenus iaitu sikap terhadap sains dan pencapaian sains. Kajian ini menggunakan teknik permodelan persamaan struktural (SEM) bagi menguji model yang dihipotesiskan dan menentukan kekuatan hubungan antara satu variabel dengan variabel yang lain. Dapatan kajian ini menunjukkan penglibatan ibu bapa mempunyai kesan langsung ke atas sikap

terhadap sains dan pencapaian sains pelajar manakala sikap terhadap sains mempunyai hubungan negatif terhadap pencapaian sains pelajar. Selain itu, dapatan kajian menunjukkan tiada perbezaan dalam analisis berbilang kumpulan antara pelajar lelaki dan perempuan.

MODELLING OF SCIENCE ACHIEVEMENT FACTORS IN TIMSS MALAYSIA 2011

ABSTRACT

Generally, TIMSS is a large-scale evaluation and research projects designed to measure the level of 4th grade and 8th grade student achievement in mathematics and science education at the international stage. TIMSS study conducted by the International Association for the Evaluation of Educational Achievement (IEA) and is held every four years beginning in 1995, then in 1999, 2003, 2007 and latest in 2011. The overall science achievement in TIMSS Malaysia is alarming. Malaysia scores were below the average TIMSS score starting from TIMSS 2003. Thus, this study aims to examine the extent to which home context, classroom context and school context influence students' science achievement in TIMSS 2011 based on the difference of the gender groups. This study involved a total of 5733 respondents from 180 secondary schools in Malaysia based on TIMSS 2011 data. Random sampling using two stage stratified cluster sampling technique was done in selecting the sample. This study also proposes a model containing two exogenous constructs which are parental involvement and school climate discipline as well as two endogenous constructs which are attitudes towards science and science achievement. This study used structural equation modeling (SEM) technique to test the hypothesized model and determine the strength of the relationship between one variable with another variable. The findings showed that parental involvement has a direct effect on students' attitudes toward science and students' science achievement while the student attitudes towards science have a negative relationship towards

students' science achievement. In addition, this study showed no difference in the multi-group analysis between male and female students.

BAB 1

PENGENALAN

1.0 Pendahuluan

Pendidikan memainkan peranan yang penting dalam meningkatkan kualiti sumber manusia supaya mempunyai daya saing yang tinggi dan mampu menghadapi cabaran di peringkat global (Sidin, Long, Abdullah, & Mohamed, 2001). Justeru itu, penilaian dilakukan terhadap segala aspek yang berhubung kait dengan kualiti pendidikan untuk kepentingan nasional. Antaranya ialah penilaian yang dilakukan untuk melihat pencapaian pelajar terutamanya di peringkat antarabangsa (Preuschoff, 2011). Oleh itu, Malaysia secara konsisten menyertai penanda aras antarabangsa yang menilai mutu dan pencapaian pelajar dalam sains dan matematik iaitu *Trends in International Mathematics and Science Study* (TIMSS) (Martin & Mullis, 2006).

TIMSS adalah suatu penilaian berskala besar dan projek penyelidikan yang dibentuk untuk mengukur tahap pencapaian pelajar gred ke-4 dan gred ke-8 dalam pendidikan matematik dan sains di peringkat antarabangsa. Penilaian ini melibatkan penyertaan lebih daripada 60 buah negara di seluruh dunia (Preuschoff, 2011). TIMSS dianjurkan oleh *International Association for the Evaluation of Educational Achievement* (IEA) yang berpusat di Amsterdam, Belanda dan diuruskan oleh *International Study Centre, Lych School of Education, Boston College* di Amerika Syarikat (Mullis, Martin, Ruddock, O'Sullivan, & Preuschoff, 2009). Kajian ini dilaksanakan empat tahun sekali iaitu bermula pada tahun 1995, seterusnya pada tahun 1999, 2003, 2007 dan kini pada tahun 2011.

TIMSS direka bentuk untuk menyelaraskan kurikulum matematik dan sains serta sistem pendidikan secara meluas di negara-negara yang mengambil bahagian (Mullis, Martin, Minnich, et al., 2012). Selain itu, pencapaian TIMSS sesebuah negara dapat memperlihatkan keupayaan pelajar dalam pengetahuan matematik, sains dan kemahiran mengikut konteks kehidupan sebenar yang diajar di sekolah (Martin, Mullis, Foy, & Stanco, 2012; Mullis, Martin, Foy, & Arora, 2012). TIMSS juga mempunyai maklumat latar belakang pelajar, guru, sekolah, kurikulum dan dasar pendidikan rasmi untuk membolehkan perbandingan dibuat merentasi negara terhadap konteks pendidikan yang berkaitan dengan pencapaian pelajar (Roth, Druker, & Garnier, 2006). Pada tahun 2011, terdapat 54 buah negara mengambil bahagian dalam TIMSS di peringkat gred keempat atau gred kelapan atau kedua-duanya (Preuschoff, 2011).

Matlamat keseluruhan TIMSS adalah untuk menyumbang kepada peningkatan pengajaran dan pembelajaran matematik dan sains dalam sistem pendidikan di seluruh dunia (Mullis, Martin, Minnich, et al., 2012). Tujuannya supaya pembuat dasar, penyelidik, perangka kurikulum, dan pendidik di semua peringkat menggunakan TIMSS untuk mempelajari tentang jenis kurikulum dan amalan pengajaran yang dikaitkan dengan pencapaian (Preuschoff, 2011). Dalam erti kata lain, pendidik daripada pelbagai latar belakang negara dan budaya yang berbeza boleh menggunakan hasil kajian itu sebagai refleksi kepada kekuatan dan kelemahan sendiri secara perbandingan (Roth et al., 2006). Namun demikian, TIMSS juga menyediakan peluang yang unik bagi sesebuah negara untuk melihat tahap pendidikan dalam konteks yang lebih luas dengan membuat perbandingan terhadap kejayaan negara lain.

Terdapat tiga elemen konseptual utama yang menjadi asas terhadap reka bentuk TIMSS ini. Elemen-elemen ini termasuklah kurikulum yang dicadangkan (peringkat polisi), kurikulum yang dilaksanakan (kurikulum yang dialami pelajar di peringkat sekolah dan bilik darjah) dan kurikulum yang dicapai (kurikulum yang diwakili oleh pencapaian pelajar) (Martin & Mullis, 2006). Melalui mekanisme analisis kurikulum, kajian video, ujian pencapaian, dan soal selidik tentang maklumat latar belakang yang dikumpul daripada pelajar, guru serta pentadbiran sekolah dapat menyediakan suatu peluang unik bagi mengkaji pengajaran sains dan matematik dilaksanakan di lebih 40 buah negara (Roth et al., 2006).

1.1 Latar Belakang Kajian

1.1.1. Kedudukan Malaysia menerusi keputusan TIMSS

TIMSS sudah disertai oleh Malaysia sebanyak empat kali iaitu pada tahun 1999, 2003, 2007 dan 2011, tetapi hanya melibatkan pelajar Tingkatan Dua yang dipilih secara rawak dari 150 buah sekolah. Berdasarkan laporan TIMSS 1999 hingga TIMSS 2011 menunjukkan skor sains pelajar Tingkatan Dua di Malaysia didapati semakin menurun (Jadual 1.0).

Jadual 1.0: Kedudukan dan skor sains TIMSS Malaysia pada tahun 1999, 2003, 2007 dan 2011

Tahun	Kedudukan / Bil negara menyertai TIMMS	Skor
1999	22/38	492
2003	20/50	510
2007	21/60	471
2011	32/45	426
	Purata skor	474.75

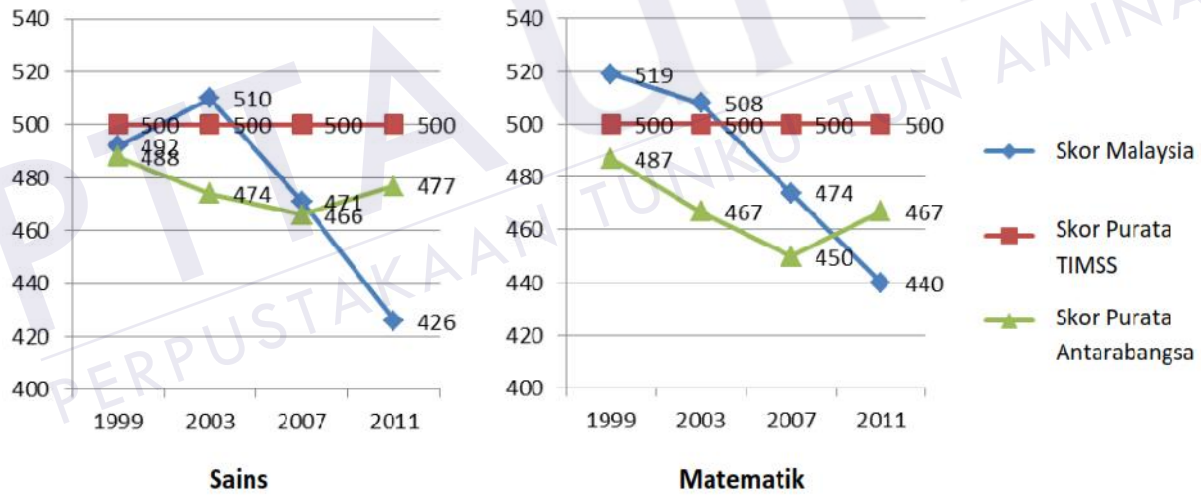
Sumber: TIMSS 1999 *Technical Report* (Foy et al., 1999), TIMSS 2003 *Technical Report* (Martin, Mullis, & Chrostowski, 2004), TIMSS 2007 *International Science Report* (Martin, Mullis, & Foy, 2008) dan TIMSS 2011 *International Results in Science* (Martin et al., 2012)

Pencapaian pelajar Malaysia dalam TIMSS memperlihatkan penurunan yang ketara iaitu berada di bawah purata skor jika dibandingkan dengan pencapaian pelajar di beberapa negara Asia lain (Singapura, Hongkong, Jepun, Korea, Taiwan, Thailand). Rata-rata skor prestasi sains pelajar dalam TIMSS pada tahun 1999 (Martin et al., 2000), 2003 (Martin, Mullis, Gonzalez, & Chrostowski, 2004), 2007 (Martin et al., 2008) dan 2011 (Martin et al., 2012) secara berturutan adalah 492, 510, 471 dan 426. Dengan skor tersebut pelajar Malaysia berada di kedudukan 22 daripada 38 negara pada tahun 1999, kedudukan 20 daripada 50 negara pada tahun 2003, kedudukan 21 daripada 60 negara pada tahun 2007 dan kedudukan 32 daripada 45 negara pada tahun 2011. Secara keseluruhan, skor sains pelajar Malaysia dalam TIMSS 2007 (Martin et al., 2008) dan TIMSS 2011 (Martin et al., 2012) adalah di bawah skor 500 (aras skor minimum yang disarankan oleh TIMSS) yang dikategorikan sebagai *Low International Benchmark* (Stephen, 2012). Keputusan tersebut, mencerminkan pelajar Malaysia hanya mampu mengingati sesuatu fakta tetapi belum mampu memahami dan mengaitkan dengan pelbagai topik sains, apatah lagi apabila dikaitkan dengan konsep-konsep yang kompleks dan abstrak (Osborne, Simon, & Collins, 2003).

Jika dibandingkan dengan negara jiran seperti Singapura dalam pencapaian TIMSS, Malaysia adalah jauh ketinggalan (Martin et al., 2012). Penilaian seperti ini adalah penanda aras kepada sistem pendidikan di Malaysia agar dapat memberi peluang kepada negara untuk menyiasat kelemahan dan kekuatan pelajar dengan

merujuk kepada pelbagai bidang pengetahuan dan kemahiran kognitif (Martin & Mullis, 2006).

Penglibatan Malaysia dalam TIMSS bertujuan mendapat maklum balas berkaitan pendidikan sains dan matematik kebangsaan bagi meningkatkan mutu pelaksanaan pendidikan sains dan matematik (Preuschoff, 2011). Pencapaian pelajar dalam TIMSS merupakan antara indikator keberkesanan pendidikan sains dan matematik di Malaysia berbanding dengan negara lain (Roth et al., 2006). Pencapaian Malaysia dalam TIMSS tahun 1999 hingga 2011 bagi sains dan matematik Tingkatan 2 ditunjukkan dalam Rajah 1.0.



Rajah 1.0: Pencapaian Malaysia dalam TIMSS

Sumber : TIMSS 1999 *Technical Report* (Foy et al., 1999), TIMSS 2003 *Technical Report* (Martin, Mullis, & Chrostowski, 2004), TIMSS 2007 *International Science Report* (Martin et al., 2008) dan TIMSS 2011 *International Results in Science* (Martin et al., 2012).

Secara keseluruhannya pencapaian Malaysia dalam TIMSS adalah membimbangkan. Walaupun skor Malaysia bagi sains meningkat pada tahun 2003 tetapi terus menurun sehingga 2011. Skor Malaysia berada di bawah skor purata TIMSS selepas tahun 2003. Keadaan ini menjadi suatu penggera untuk

mempertingkatkan pencapaian murid Malaysia dalam pendidikan sains (Pelan Pembangunan Pendidikan Malaysia 2013-2025, 2013). Pencapaian negara dalam TIMSS dan PISA (*Programme for International Student Assessment*) mempengaruhi kedudukan negara dalam "*ranking*" antarabangsa yang sering digunakan sebagai satu indikator kualiti sistem pendidikan (Pelan Pembangunan Pendidikan Malaysia 2013-2025, 2013). Menyedari kepentingan pencapaian dalam TIMSS, maka salah satu petunjuk prestasi utama dalam Pelan Pembangunan Pendidikan Malaysia 2013-2025 adalah untuk memastikan Malaysia mencapai sekurang-kurangnya skor purata TIMSS menjelang tahun 2015 dan pada satu pertiga teratas menjelang tahun 2025.

1.2 Pernyataan Masalah

TIMSS dianggap sebagai penanda aras sesebuah negara dalam pencapaian matematik dan sains pelajar, namun TIMSS sebenarnya mempunyai matlamat utama untuk membantu pembuat dasar dan pengamal pendidikan dengan menyalurkan informasi mengenai cara-cara untuk meningkatkan pengajaran dan pembelajaran (Mullis, Martin, Minnich, et al., 2012). Bagi merealisasikan matlamat ini, TIMSS mengumpul pelbagai jenis maklumat latar belakang daripada para pelajar, ibu bapa, guru dan pentadbiran sekolah melalui soal selidik (Martin & Mullis, 2006).

Pengumpulan maklumat melalui pentadbiran soal selidik TIMSS dalam konteks rumah adalah penglibatan ibu bapa manakala konteks sekolah merujuk kepada disiplin sekolah dan konteks bilik darjah pula merujuk kepada sikap pelajar terhadap sains (Martin & Mullis, 2006). Ketiga-tiga konteks ini adalah penting kerana banyak kajian lepas menyebut bahawa ketiga-tiga variabel dalam konteks berkenaan berpotensi menyumbang kepada pencapaian pelajar (Preuschoff, 2011).

Dalam konteks rumah, penglibatan ibu bapa memainkan peranan yang penting dalam pembangunan dan kejayaan akademik anak-anak mereka sama ada di rumah mahupun di sekolah (Domina, 2005; Jeynes, 2005; Olatoye & Ogunkola, 2008). Walaupun terdapat bukti tentang nilai penglibatan ibu bapa, namun terlalu ramai ibu bapa masih kekurangan maklumat yang secukupnya tentang persekolahan anak-anak mereka (Gianzero, 1999). Tidak banyak diketahui tentang mengapa ibu bapa kurang melibatkan diri dalam pendidikan anak-anak mereka ketika di sekolah menengah (Christenson & Sheridan, 2003; Christenson, 2004; Susan, Lisa, Carolyn, James, & Kevin, 2010) berbanding sekolah rendah (Arnold, Zeljo, Doctoroff, & Ortiz, 2008). Di Malaysia, ibu bapa didapati kurang melibatkan diri dalam pendidikan anak-anak mereka ketika di sekolah menengah (Ismail, 2001; Mohd Sahid, Mustaffa, & Ahmad, 2008; Yahaya, Yahaya, & Bahari, 2004). Didapati juga kajian mengenai penglibatan ibu bapa dalam pendidikan anak-anak di negara-negara membangun adalah sedikit dan mungkin memberikan sumbangan yang berbeza (Martin & Mullis, 2013). Kebanyakan laporan penyelidikan berkaitan topik ini datang dari negara-negara maju (Jeynes, 2005).

Dalam konteks sekolah, disiplin sekolah dikaitkan sebagai salah satu faktor penting yang berkaitan dengan pencapaian pelajar (Hattie, 2009; Scheerens, 2005; Wang, Haertel, & Walberg, 1993). Walau bagaimanapun, wujud perbezaan ketara mengenai disiplin murid pada masa kini dan tahun sebelum 2000 (Bowen, 2012). Menurut maklumat yang diperolehi, statistik salah laku disiplin murid yang direkodkan oleh Kementerian Pendidikan Malaysia (2013) dalam tempoh 5 tahun (2008 hingga 2012) melibatkan sejumlah 107,191 orang yang merangkumi 10 jenis kesalahan. Laporan tersebut berpandukan kepada sumber kementerian mengenai

salah laku displin pelajar yang merangkumi penglibatan pelajar dalam jenayah, berkelakuan buruk, ponteng kelas, pornografi dan vandalisme. Lebih membimbangkan, 73.09 peratus merupakan pelajar sekolah menengah yang akan menduduki peperiksaan penting beberapa tahun selepas itu (Kementerian Pendidikan Malaysia, 2013). Penyelidik seperti Noran Fauziah (2004), menyatakan bilik darjah tidak lagi selamat kepada pelajar. Kajian beliau menunjukkan salah satu salah laku disiplin yang kerap berlaku di sekolah ialah kegiatan membuli (Fauziah, 2004). Berdasarkan permasalahan di atas, kajian ini bertujuan mengenal pasti tahap pencapaian sains pelajar Tingkatan Dua di sekolah menengah di Malaysia yang dipengaruhi oleh faktor disiplin sekolah.

Dalam konteks bilik darjah, sikap pelajar dilihat menjadi sebagai faktor penyumbang terhadap pencapaian sains pelajar (Ali & Awan, 2013; Dhindsa & Chung, 2003; Ferreira, 2003; Freedman, 1997; Mattern & Schau, 2002; Osborne et al., 2003; Shah, Mahmood, & Harrison, 2013; Simpson & Oliver, 1990). Sikap positif terhadap sesuatu mata pelajaran di sekolah harus menjadi matlamat pembelajaran yang utama (Papanastasiou & Zembylas, 2004). Lantaran itu, adalah mungkin seseorang pelajar yang berasa sangat positif tentang sains akan mencapai tahap yang lebih tinggi daripada pelajar yang mempunyai sikap negatif terhadap sains (Osborne et al., 2003). Namun, terdapat juga beberapa kajian yang mendapati penurunan minat pelajar terhadap sains (Bakar, 2012; Barmby, Kind, & Jones, 2008; Kamarudin, Isa, & Naim, 2010; Osman, Iksan, & Halim, 2007). Pelajar merasakan mata pelajaran sains adalah sukar untuk difahami (Bakar, 2012; Kamarudin et al., 2010) dan membosankan (Barmby *et al*., 2008). Selain itu, pelajar juga bertanggapan bahawa mata pelajaran sains yang bukan hanya membosankan tetapi terlalu abstrak

BIBLIOGRAFI

Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*. Retrieved from http://psycnet.apa.org/journals/bul/84/5/888/

Akaike, H. (1981). Likelihood of a model and information criteria. *Journal of Econometrics*, *16*(1), 3–14. http://doi.org/10.1016/0304-4076(81)90071-3

Akaike, H. (1987). Factor analysis and AIC. *Psychometrika*, *52*(3), 317–332. http://doi.org/10.1007/BF02294359

Akilli, M. (2015). Regression Levels of Selected Affective Factors on Science Achievement: a Structural Equation Model with TIMSS 2011 Data. *Electronic Journal of Science Education*, *19*(1), 1–16.

Akindele, N. (2012). Reading Culture , Parental Involvement and Children ' s Development in Formative Years : The Covenant University Experience. *Library Philosophy and Practice (e-Journal)*, 1–21.

Alhabshi, S., & Hakim, H. (2001). *Dasar dan pelaksanaan sistem pendidikan kebangsaan*. *Kongres Pendidikan Melayu*. Retrieved from http://pensyarah.ined.uitm.edu.my/nfs-shared/Upload/Courses/EDU405/Forum/20140410221938131_Dasar_dan Pelaksanaan_Sistem Pendidikan Kebangsaan.pdf

Ali, M. S., & Awan, a. S. (2013). Attitude Towards Science and Its Relationship With Students ' Achievement in Science. *Interdisciplinary Journal of Contemporary Research In Business*, (2003), 707–718.

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *103*(3), 411–423. http://doi.org/10.1037/0033-2909.103.3.411

Anderson, K. J., & Minke, K. M. (2007). Parent Involvement in Education: Toward an Understanding of Parents' Decision Making. *The Journal of Educational Research*, *100*(5), 311–323.

Anfara, V. A., & Mertz, N. T. (2006). *Theoretical frameworks in qualitative research*. SAGE Publications.

Arnold, D. H., Zeljo, A., Doctoroff, G. L., & Ortiz, C. (2008). Parent Involvement in Preschool: Predictors and the Relation of Involvement to Preliteracy Development. *School Psychology Review*, *37*(1), 74–90.

Arnold, M. L., Newman, J. H., Gaddy, B. B., & Dean, C. B. (2005). A look at the condition of rural education research: Setting a direction for future research. *Journal of Research in Rural Education*, *20*(6).

Arshat, Z., Baharudin, R., & Kahar, R. O. A. (2002). Tingkah Laku Keibubapaan dan Penyesuaian Tingkah Laku Anak dalam Keluarga Berisiko di Luar Bandar. *Pertanika Journal of Social Sciences & Humanities*, *10*(2), 165–178.

Arum, R., & Velez, M. (2012). Class and Racial Differences in U.S. School Disiplinary Environments. In R. Arum & M. Velez (Eds.), *Improving learning environments: School discipline and student achievement in comparative perspective* (p. 278).

Bakar, M. (2012). Masalah Pembelajaran Pelajar Sekolah Menengah Dalam Mata Pelajaran Sains Tingkatan 2 Tajuk: Fotosintesis. Retrieved June 29, 2015, from http://eprints.utm.my/10944/

Baker, C. (1988). *Key Issues in Bilingualism and Bilingual Education*. Multilingual Matters. Retrieved from https://books.google.com/books?hl=en&lr=&id=HMPzP0lPxYoC&pgis=1

Baker, D. R. (1998). Equity issues in science education. In B. J. Fraser & K. G. Tobin (Eds.), *International handbook of teachers and teaching* (Vol. 2, pp. 869–895). Kluwer Academic Publishers. Retrieved from https://books.google.com/books?id=i-TdvU6ET0EC&pgis=1

Baker, D. R. (2001). Mathematics and science. In M. Forman-Brunell (Ed.), *Girlhood in America: An encyclopedia* (pp. 453–444). ABC-CLIO, Inc.

Bandura, A. (1977). Social learning theory. Retrieved July 8, 2015, from http://www.esludwig.com/uploads/2/6/1/0/26105457/bandura_shttp://www.esludwig.com/uploads/2/6/1/0/26105457/bandura_sociallearningtheory.pdfociallearningtheory.pdf

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall, Inc.

Bandura, A. (2001). Social Cognitive Theory: An Agentic Perspective. *Annual Review of Psychology*, *52*(1), 1–26. http://doi.org/10.1146/annurev.psych.52.1.1

Barge, J. K., & Loges, W. E. (2003). Parent, Student, and Teacher Perceptions of Parental Involvement. *Journal of Applied Communication Research*, *31*(2), 140–163.

Barmby, P., Kind, P., & Jones, K. (2008). Examining changing attitudes in secondary school science., (June 2015), 37–41.

Bem, S. L. (1981). Gender schema theory: A cognitive account of sex typing. *Psychological Review*, *88*(4), 354–364.

Bennett, J. (2005). *Teaching and Learning Science: A Guide to Recent Research and Its Applications*. A&C Black.

Blair, G. (1998). Australia. In G. P. Kelly (Ed.), *International Handbook of Women's Education* (pp. 285–322). Greenwood Press.

Bojuwoye, O., & Narain, M. (2008). Parental Involvement and Children's Academic Achievement in a South Africa Setting. *Journal of Psychology in Africa*, *18*(2), 275–278.

Borkan, B., Capa, Y., Figueiredo, C., & Loadman, W. (2003). *Using Rasch Measurement To Evaluate the Organizational Climate Index.* Retrieved from http://eric.ed.gov/?id=ED481677

Bowen, S. H. (2012). Discipline, school policy and education issues: Bullying and violence. EduGuide. Retrieved June 28, 2015, from http://www.eduguide.org/library/viewarticle/553

Brand, S., Felner, R., Shim, M., Seitsinger, A., & Dumas, T. (2003). Middle school improvement and reform: Development and validation of a school-level assessment of climate, cultural pluralism, and school safety. *Journal of Educational Psychology*, *95*(3), 570–588.

Bronfenbrenner, U. (1979). *The Ecology of Human Development: experiments by nature and design*. Harvard University Press.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology*, *22*(6), 723.

Bronfenbrenner, U. (1994). Ecological models of human development. In *International Encyclopedia of Education* (2nd ed., pp. 37–43). Oxford: Elsevier.

Brooks-Gunn, J., & Duncan, G. (1997). The effects of poverty on children. *The Future of Children*, 55–71.

Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research*, *21*(2), 230–258.

Buhi, E. R. (2007). Structural equation modeling: a primer for health behavior researchers. *American Journal of Health Behavior*, *31*(1), 74–85.

Busch, T. (1995). Gender Differences in Self-efficacy and Academic Performance among Students of Business Administration. *Scandinavian Journal of Educational Research*, *39*(4), 311–318.

Byrne, B. M. (2001). *Structural equation modeling with AMOS* (2nd ed.). Taylor & Francis Group.

Campbell, J. L. (2001). Age, gender, socioeconomic, and ethnic differences in patients' assessments of primary health care. *Quality in Health Care*, *10*(2), 90–95. http://doi.org/10.1136/qhc.10.2.90

Chen, S.-F., Lin, C.-Y., Wang, J.-R., Lin, S.-W., & Kao, H.-L. (2012). A Cross-grade Comparison to Examine the Context Effect on the Relationships Among Family Resources, School Climate, Learning Participation, Science Attitude, and Science Achievement Based on TIMSS 2003 in Taiwan. *International Journal of Science Education*, *34*(14), 2089–2106.

Cho, G. (2004). Using Structural Equation Modeling to Fit a Model of Student Background, Teacher Background, Home Environment, and a School Characteristic to. *Journal of the Korea Society of Mathematical Education*, *7*(4), 247–270.

Cho, G. P. (2003). Using Structural Equation Modeling to Fit a Model of Student Background , Teacher Background , Home Environment , and a School Characteristic to Mathematics Achievement on the TIMSS, *7*(2), 247–270.

Christenson, S. L. (2004). The Family-School Partnership: An Opportunity to Promote the Learning Competence of All Students. *School Psychology Review*, *33*(1), 83–104.

Christenson, S. L., & Sheridan, S. M. (2003). School and families: Creating essential connections for learning. *Psychology in the Schools*, *40*(4), 444–445.

Clark, R. M. (1993). Homework-focused parenting practices that positively affect student achievement. In N. F. Chavkin (Ed.), *Families and Schools in a Pluralistic Society* (pp. 85–104). SUNY Press.

Cohen, E., & Canan, L. (2006). Closer to home: Parent mentors in child welfare. *Child Welfare*, *85*(5), 867–884.

Comer, J., & Haynes, N. (1991). Parent involvement in schools: An ecological approach. *The Elementary School Journal*, 271–277. Retrieved from http://www.jstor.org/stable/1001713

Conoley, J. C., & Goldstein, A. P. (2004). *School Violence Intervention: A Practical Handbook*. Guilford Press.

Cooper, H., Robinson, J. C., & Patall, E. A. (2006). Does Homework Improve Academic Achievement? A Synthesis of Research, 1987–2003. *Review of Educational Research*, *76*(1), 1–62.

Creswell, J. W. (2013). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed.). SAGE Publications.

Crosnoe, R., Johnson, M. K., & Elder, G. H. (2004). Intergenerational bonding in school: The behavioral and contextual correlates of student-teacher relationships. *Sociology of Education*, *77*(1), 60–81.

Darling, N. (2007). Ecological Systems Theory: The Person in the Center of the Circles. *Research in Human Development*, *4*(3-4), 203–217.

De Civita, M., Pagani, L., Vitaro, F., & Tremblay, R. E. (2004). The role of maternal educational aspirations in mediating the risk of income source on academic failure in children from persistently poor families. *Children and Youth Services Review*, *26*(8), 749–769.

Defrain, J., & Asay, S. (2007). Epilogue: A strengths-based conceptual framework for understanding families world-wide. *Marriage & Family Review*, *41*(3-4), 281–307.

Desforges, C., & Abouchaar, A. (2003). The Impact of Parental Involvement , Parental Support and Family Education on Pupil Achievements and Adjustment : A Literature Review with. *Education*, *30*(8), 1–110.

Desimone, L. (1999). Linking Parent Involvement With Student Achievement: Do Race and Income Matter? *The Journal of Educational Research*, *93*(1), 11–30.

Deslandes, R., & Bertrand, R. (2005). Motivation of Parent Involvement in Secondary-Level Schooling. *The Journal of Educational Research*, *98*(3), 164–175.

Dhindsa, H. S., & Chung, G. (2003). Attitudes and achievement of Bruneian science students. *International Journal of Science Education*, *25*(8), 907–922.

Domina, T. (2005). Leveling the Home Advantage: Assessing the Effectiveness of Parental Involvement in Elementary School. *Sociology of Education*, *78*(3), 233–249.

Drummond, K. V., & Stipek, D. (2004). Low-Income Parents' Beliefs about Their Role in Children's Academic Learning. *The Elementary School Journal*, *104*(3), 197.

Epstein, J. L. (2001). Building bridges of home, school, and community: The importance of design. *Journal of Education for Students Placed at Risk*, *6*(1-2), 161–168.

Epstein, J. L. (2008). Improving family and community involvement in secondary schools. *Education Digest*, *73*(6), 9–12.

Ercikan, K. (1998). Translation effects in international assessments. *International Journal of Educational Research*, *29*(6), 543–553.

Eron, L. (1982). Parent–child interaction, television violence, and aggression of children. *American Psychologist*, *37*(2), 197.

Fagen, D. B., & Cowen, E. L. (1996). Relationships between Parent-Child Relational Variables and Child Test Variables in Highly Stressed Urban Families. *Child Study Journal*, *26*(2), 87–108.

Fan, W., & Williams, C. (2010). The effects of parental involvement on students' academic self-efficacy, engagement and intrinsic motivation. *Educational Psychology*, *30*(1), 53–74.

Fan, X., & Chen, M. (2001). Parental involvement and students' academic achievement: A meta-analysis. *Educational Psychology Review*, *13*(1), 1–22.

Farmer, G. L. (1999). Disciplinary Practices and Perceptions of School Safety. *Journal of Social Service Research*, *26*(1), 1–38.

Fensham, P. J. (2000). International success, but is it Science?–Identifying strengths and weaknesses in Australian primary school science from TIMSS and other data. *Australian Science Teachers Association Journal*, *45*(2), 39–44.

Ferreira, M. (2003). Gender issues related to graduate student attrition in two science departments. *International Journal of Science Education*, *25*(8), 969–989.

Feuerstein, A. (2000). School Characteristics and Parent Involvement: Influences on Participation in Children's Schools. *The Journal of Educational Research*, *94*(1), 29–40.

Field, T. W., & Copley, A. J. (1969). Cognitive style and science achievement. *Journal of Research in Science Teaching*, *6*(1), 2–10.

Fifield, S., & Swain, H. L. (2002). Heteronormativity and common sense in science (teacher) education. In R. M. Kissen (Ed.), *Getting Ready for Benjamin: Preparing Teachers for Sexual Diversity in the Classroom* (pp. 177–189). Rowman & Littlefield Publishers.

Figlio, D. N. (2007). *Boys named Sue: Disruptive children and their peers*. *Education* (Vol. 2). Retrieved from http://www.mitpressjournals.org/doi/abs/10.1162/edfp.2007.2.4.376

Fishel, M., & Ramirez, L. (2005). Evidence-based parent involvement interventions with school-aged children. *School Psychology Quarterly*, *20*(4), 371–402.

Flinders, D. J., & Mills, G. E. (1993). *Theory and concepts in qualitative research: Perceptions from the field*. New York, NY: Teachers College Press.

Forehand, R., Biggar, H., & Kotchick, B. A. (1998). Cumulative Risk Across Family Stressors: Short- and Long-Term Effects for Adolescents. *Journal of Abnormal Child Psychology*, *26*(2), 119–128.

Foy, P., Gonzalez, E. J., Mullis, I. V. S., Connor, K. M. O., Smith, T. a, Martin, M. O., … Stemler, S. E. (1999). *TIMSS 1999 Technical Report*. (M. O. Martin, K. D. Gregory, & S. E. Stemler, Eds.). International Study Center Lynch School of Education Boston College.

Foy, P., & Joncas, M. (2000). TIMSS Sample Design. In M. O. Martin, K. D. Gregory, & S. E. Stemler (Eds.), *TIMSS 1999 Technical Report* (pp. 29–48). International Study Center Lynch School of Education Boston College.

Fraenkel, J. R., & Wallen, N. E. (1993). *How to Design and Evaluate Research in Education (2nd ed.). PsycCRITIQUES* (7th ed., Vol. 38). New York: McGraw-Hill.

Franco, N., & Levitt, M. (1998). The social ecology of middle childhood: Family support, friendship quality, and self-esteem. *Family Relations*, 315–321.

Freedman, M. P. (1997). Relationship among laboratory instruction, attitude toward science, and achievement in science knowledge. *Journal of Research in Science Teaching*, *34*(4), 343–357.

Frempong, G., Ma, X., & Mensah, J. (2012). Access to postsecondary education: Can schools compensate for socioeconomic disadvantage? *Higher Education*, *63*(1), 19–32.

Gaskell, J. (1998). Australia. In G. P. Kelly (Ed.), *International Handbook of Women's Education* (pp. 493–514). Greenwood Press.

Ghauri, P., & Gronhaug, K. (2010). *Research methods in business studies: A practical guide* (4th ed.). Prentice Hall.

Ghosh, S. (2003). A structural model analysis of the Malcolm Baldrige National Quality Award framework. *International Journal of Management and Decision Making*, *4*(4), 289–311.

Gianzero, G. (1999). *Promoting Parental Involvement, Improving Student Outcomes*. *Working Paper*. Retrieved from http://www.inpathways.net/promoting_parent_involvement.pdf

Given, L. M. (2008). *The SAGE Encyclopedia of Qualitative Research Methods* (2nd ed.). SAGE Publications.

Goh, S. C., & Fraser, B. J. (1998). Teacher Interpersonal Behaviour, Classroom Environment and Student Outcomes in Primary Mathematics in Singapore. *Learning Environments Research*, *1*(2), 199–229.

Gonzalez, E. J., Smith, T. a, Kelly, D. L., Martin, M. O., & Foy, P. (1997). User Guide for the TIMSS International Database Primary and Middle School Years. Chestnut Hill, MA: TIMSS International Study Center. Retrieved from http://wwwcsteep.bc.edu/timss

Good, J. J., Woodzicka, J. A., & Wingfield, L. C. (2010). The effects of gender stereotypic and counter-stereotypic textbook images on science performance. *The Journal of Social …*, *150*(2), 132–147.

Gottfredson, G. D., Gottfredson, D. C., Payne, A. A., & Gottfredson, N. C. (2005). School climate predictors of school disorder: Results from a national study of delinquency prevention in schools. *Journal of Research …*, *42*(4), 412–444.

Gratz, J., & Edelman, W. (2006). The Impact of Parents ' Background on their Children ' s Education. *Educational Studies 268: Saving Our Nation, Saving Our Schools: Public Education for Public Good*.

Green, C. L., Walker, J. M. T., Hoover-Dempsey, K. V., & Sandler, H. M. (2007). Parents' motivations for involvement in children's education: An empirical test of a theoretical model of parental involvement. *Journal of Educational Psychology*, *99*(3), 532.

Greenfield, T. A. (1997). Gender and Grade-Level Differences in Science Interest and Participation. *Science Education*, *81*(3), 259–276.

Grolnick, W. S., Benjet, C., Kurowski, C. O., & Apostoleris, N. H. (1997). Predictors of parent involvement in children's schooling. *Journal of Educational Psychology*, *89*(3), 538.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2013). *Multivariate Data Analysis*. Pearson Education, Limited.

Halpern, D. F. (2012). *Sex Differences in Cognitive Abilities* (4th ed.). Psychology Press.

Hannon, P. (2000). Rhetoric and research in family literacy. *British Educational Research Journal*, *26*(1), 121–138.

Harlow, A., & Jones, A. (2004). Why students answer TIMSS science test items the way they do. *Research in Science Education*, *34*(2), 221–238.

Harris, A., & Goodall, J. (2008). Do parents know they matter? Engaging all parents in learning. *Educational Research*, *50*(3).

Hashim, R. (2012). Memenuhi Aspirasi Kemahiran Berfikir dalam Pelan Pembangunan Pendidikan Malaysia 2013-2025 menerusi inkuiri dan pedagogi filosofiyyah dalam. In *Persidangan Majlis Dekan Fakulti Pendidikan*. Universiti Teknologi Malaysia. Retrieved from http://www.medc.com.my/medc/seminar_medc/fromCD/pdf/IIUM.pdf

Hattie, J. (2009). *Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement*. *Routhledge*. Routledge. Retrieved from http://www.amazon.com/Visible-Learning-Synthesis-Meta-Analyses-Achievement/dp/0415476186#reader_0415476186

Henderson, A., & Mapp, K. (2002). *A New Wave of Evidence: The Impact of School, Family, and Community Connections on Student Achievement. Annual Synthesis 2002. National Center for Family and Community Connections with Schools*.

Hickman, C. W., Greenwood, G., & Miller, M. D. (1995). High school parent involvement: Relationships with achievement, grade level, SES and gender. *Journal of Research & Development in Education*.

Hill, N. E., & Tyson, D. F. (2009). Parental involvement in middle school: a meta-analytic assessment of the strategies that promote achievement. *Developmental Psychology*, *45*(3), 740.

Ho, E. S. C. (2010). FAMILY INFLUENCES ON SCIENCE LEARNING AMONG HONG KONG ADOLESCENTS: WHAT WE LEARNED FROM PISA. *International Journal of Science and Mathematics Education*, *8*(3), 409–428.

Hoffman, L. L., Hutchinson, C. J., & Reiss, E. (2009). On Improving School Climate: Reducing Reliance on Rewards and Punishment. *International Journal of Whole Schooling*, *5*(1), 13–24.

Holbert, R. L., & Stephenson, M. T. (2002). Structural Equation Modeling in the Communication Sciences, 1995-2000. *Human Communication Research*, *28*(4), 531–551.

Holliday, W., & Holliday, B. (2003). Why using international comparative math and science achievement data from TIMSS is not helpful. *The Educational Forum*, *67*(3), 250–257.

Hoover-Dempsey, K. V., & Sandler, H. M. (1995). Parental involvement in children's education: Why does it make a difference? *Teachers College Record*, *97*(2), 310–331.

Howie, S. J. (2006). Multi-level factors affecting the performance of South African pupils in mathematics. In S. J. Howie & T. Plomp (Eds.), *Contexts of learning mathematics and science* (pp. 157–176). Routledge.

Howie, S. J., & Plomp, T. (2006). *Contexts of learning mathematics and science: Lessons learned from TIMSS.* Routledge.

Hox, J. (2010). *Multilevel analysis: Techniques and applications* (2nd ed.).

Hui, W. P. (2014). Success Factors of Taiwan in TIMSS Mathematics Assessment. *International Journal of Education and Psychological Research (IJEPR)*, *3*(3).

Ibrahim, A., Jamil, H., & Abdullah, A. (2012). The Typologies of Parental Involvement in Katsina State Primary Schools. *IntInternational Journal of Learning & Development*, *2*(4), 95.

Iksan, Z., Halim, L., & Osman, K. (2006). Sikap Terhadap Sains dalam Kalangan Pelajar Sains di Peringkat Menengah dan Matrikulasi. *Pertanika Journal of Social Sciences & Humanities*, *14*(2), 131–147.

Ingels, S. J., Burns, L. J., Chen, X., Cataldi, E. F., & Charleston, S. (2005). *A profile of the American high school sophomore in 2002: Initial results from the base year of the Educational Longitudinal Study of 2002*.

Ismail, & Awang. (2008). Differentials in mathematics achievement among eighth-grade students in Malaysia. *International Journal of Science and Mathematics Education*, *6*(3), 559–571.

Ismail, M., Samsudin, M., & Zain, A. (2014). A Multilevel Study on Trends in Malaysian Secondary School Students? Science Attitude: Evidence from TIMSS 2011. *International Journal of Asian …*, *4*(5), 572–584.

Ismail, N. (2001). *Hubungan di antara gaya kepimpinan ibu bapa dengan pelanggaran disiplin pelajar-pelajar tingkatan empat di Sekolah Menengah Teknik Slim River, Perak*. Kolej Universiti Teknologi Tun Hussein Onn. Retrieved from http://eprints.uthm.edu.my/1294/

Ismail, N. A., & Awang, H. (2012). Student factors and mathematics achievement: Evidence from TIMSS 2007. *Eurasia Journal of Mathematics, Science & …*. Retrieved from http://www.ejmste.com/v8n4/EURASIA_v8n4_Awang.pdf

Jeynes, W. (2012). A meta-analysis of the efficacy of different types of parental involvement programs for urban students. *Urban Education*. Retrieved from http://uex.sagepub.com/content/47/4/706.short

Jeynes, W. H. (2005). A Meta-Analysis of the Relation of Parental Involvement to Urban Elementary School Student Academic Achievement. *Urban Education*, *40*(3), 237–269.

Jeynes, W. H. (2007). The Relationship Between Parental Involvement and Urban Secondary School Student Academic Achievement. *Urban Education*.

Johnson, U. Y., & Hull, D. M. (2014). Parent Involvement and Science Achievement: A Cross-Classified Multilevel Latent Growth Curve Analysis. *The Journal of Educational Research*, (May), null–null.

Joncas, M. (2008). TIMSS 2007 Sample Design. In J. F. Olson, M. O. Martin, & I. V. S. Mullis (Eds.), *TIMSS 2007 technical report* (pp. 77–92). TIMSS & PIRLS International Study Center Lynch School of Education, Boston College.

Joncas, M., & Foy, P. (2012). Sample Design in TIMSS and PIRLS. Methods and procedures. Retrieved July 9, 2015, from http://timssandpirls.bc.edu/methods/pdf/TP_Sampling_Design.pdf

Jones, M. G., Howe, A., & Rua, M. J. (2000). Gender differences in students' experiences, interests, and attitudes toward science and scientists. *Science Education*, *84*(2), 180–192.

Kahle, J., & Meece, J. (1994). Research on gender issues in the classroom. In Gabel; D. (Ed.), *Handbook of research on science teaching and learning* (pp. 542–576). Washington, DC: National Science Teachers Association. Kerlinger,.

Kamarudin, M., Isa, H., & Naim, H. (2010). Tahap Kefahaman Dan Pengaplikasian Konsep Daya Dan Tekanan Dalam Kehidupan Seharian Dalam Kalangan Pelajar Tahun Akhir Program Pendidikan Fizik. Retrieved June 29, 2015, from http://eprints.utm.my/10943/

Kelly, A. (1978). *Girls and science: An international study of sex differences in school science achievement*. Almqvist & Wiksell International.

Kementerian Pelajaran Malaysia. (2013). *Laporan Isu Disiplin Murid Sekolah 2012. Hala Tuju Sektor Pengurusan Kaunseling Dan Disiplin. Kuala Lumpur : Bahagian Pengurusan Sekolah Harian, Kementerian Pelajaran Malaysia.* PTS Publications & Distributors Sdn Bhd.

Kendziora, K., & Osher, D. (2009). *Starting to turn schools around: The academic outcomes of the Safe Schools, Successful Students initiative*. *Washington, DC: American Institutes for Research*.

Kerlinger, F. N. (1973). *Foundations of behavioral research*. *New York, New York: Holt, Rinehart and Winston*.

Kerlinger, F. N. (1986). *Foundation of behavioural research* (3rd ed.). New York, NY: Holt, Rinehart & Winston.

Kiamanesh, A. R., & Mohsenpour, M. (2008). Trends in Factors Affecting Iranian Eighth Graders ' Mathematics Achievement by Gender (TIMSS 1999 , 2003 & 2007). In *Third IRC 2008 Conference, Chinese Taipei* (pp. 1–15).

Kirkpatrick, R., & Zang, Y. (2011). The Negative Influences of Exam-Oriented Education on Chinese High School Students: Backwash from Classroom to Child. *Language Testing in Asia*, *1*(3), 36–45.

Klieme, E., & Baumert, J. (2001). Identifying national cultures of mathematics education: Analysis of cognitive demands and differential item functioning in TIMSS. *European Journal of Psychology of Education*, *16*(3), 385–402.

Knollmann, M., & Wild, E. (2007). Quality of parental support and students' emotions during homework: Moderating effects of students' motivational orientations. *European Journal of Psychology of Education*, *22*(1), 63–76.

Kordi, A. (2010). Parenting Attitude and Style and Its Effect on Children ' s School Achievements. *Journal Of Psychological Studies*, *2*(2), 217–222.

Kosciw, J. G. (2004). *The 2003 National School Climate Survey. The School-Related Experiences of Our Nation's Lesbian, Gay, Bisexual and Transgender Youth*. *GLSEN (Gay, Lesbian and Straight Education Network)*. Gay, Lesbian and Straight Education Network, New York. Retrieved from http://eric.ed.gov/?id=ED486412

Koth, C. W., Bradshaw, C. P., & Leaf, P. J. (2008). A multilevel study of predictors of student perceptions of school climate: The effect of classroom-level factors. *Journal of Educational Psychology*, *100*(1), 96–104.

Kuperminc, G., Leadbeater, B., & Blatt, S. (2001). School Social Climate and Individual Differences in Vulnerability to Psychopathology among Middle School Students. *Journal of School Psychology*, *39*(2), 141–159.

Lareau, A. (2000). *Home Advantage: Social Class and Parental Intervention in Elementary Education* (2nd ed.). Rowman & Littlefield Publishers.

Lassen, S., Steele, M., & Sailor, W. (2006). The relationship of school-wide positive behavior support to academic achievement in an urban middle school. *Psychology in the Schools*, *43*(6), 701–712.

Lawson, M. a. (2003). School-Family Relations In Context: Parent and Teacher Perceptions of Parent Involvement. *Urban Education*, *38*(1), 77–133.

Lee, J., & Bowen, N. (2006). Parent involvement, cultural capital, and the achievement gap among elementary school children. *American Educational Research Journal*, *43*(2), 193–218.

Lee, V., & Bryk, A. (1989). A Multilevel Model of the Social Distribution of High School Achievement. *Sociology of Education*, *62*(3), 172–192.

Letts, W. (2001). When Science is Strangely Alluring: Interrogating the masculinist and heteronormative nature of primary school science. *Gender and Education*, *13*(3), 261–274.

Lüdtke, O., Trautwein, U., Kunter, M., & Baumert, J. (2006). Reliability and agreement of student ratings of the classroom environment: A reanalysis of TIMSS data. *Learning Environments Research*, *9*(3), 215–230.

Luiselli, J. K., Putnam, R. F., Handler, M. W., & Feinberg, A. B. (2005). Whole school positive behaviour support: effects on student discipline problems and academic performance. *Educational Psychology*, *25*(2-3), 183–198.

Ma, X. (2003). Sense of Belonging to School: Can Schools Make a Difference? *The Journal of Educational Research*, *96*(6), 340–349.

Ma, X., & Willms, J. D. (2004). School disciplinary climate: Characteristics and effects on eighth grade achievement. *Alberta Journal of Educational Research*, *50*(2), 169–188.

MacCallum, R., & Austin, J. (2000). Applications of structural equation modeling in psychological research. *Annual Review of Psychology*. Retrieved from http://www.annualreviews.org/doi/abs/10.1146/annurev.psych.51.1.201

MacCallum, R. C., Roznowski, M., Mar, C. M., & Reith, J. V. (1994). Alternative Strategies for Cross-Validation of Covariance Structure Models. *Multivariate Behavioral Research*, *29*(1), 1–32.

Marchant, G. J., Paulson, S. E., & Rothlisberg, B. a. (2001). Relations of middle school students' perceptions of family and school contexts with academic achievement. *Psychology in the Schools*, *38*(6), 505–519.

Marks, G. N. (2010). What aspects of schooling are important? School effects on tertiary entrance performance. *School Effectiveness and School Improvement*, *21*(3), 267–287.

Marks, H. M. (2000). Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American Educational Research Journal, 37*(1), 153–184.

Martin, M. O., & Mullis, I. V. S. (2006). TIMSS: Purpose and Design. In S. J. Howie & T. Plomp (Eds.), *Contexts of learning mathematics and science: Lessons learned from TIMSS* (p. 17). Routledge. Retrieved from http://www.gbv.de/dms/mpib-toc/503237507.pdf

Martin, M. O., & Mullis, I. V. S. (2013). *TIMSS and PIRLS 2011: Relationships Among Reading, Mathematics and Science Achievement at the Fourth Grade—Implications for Early Learning*. TIMSS & PIRLS International Study Center, Lynch School of Education, Boston College and International Association for the Evaluation of Educational Achievement (IEA).

Martin, M. O., Mullis, I. V. S., & Chrostowski, S. J. (2004). *TIMSS 2003 Technical Report: Findings from IEA's Trends in International Mathematics and Science Study at the Fourth and Eighth Grades.* TIMSS & PIRLS International Study Center Lynch School of Education, Boston College.

Martin, M. O., Mullis, I. V. S., & Foy, P. (2008). *TIMSS 2007 International Science Report*. (J. F. Olson, E. Erberber, C. Preuschoff, & J. Galia, Eds.). TIMSS & PIRLS International Study Center, Lynch School of Education, Boston College.

Martin, M. O., Mullis, I. V. S., Foy, P., & Stanco, G. M. (2012). *TIMSS 2011 International Results in Science*. TIMSS & PIRLS International Study Center, Lynch School of Education, Boston College Chestnut Hill, MA, USA and International Association for the Evaluation of Educational Achievement (IEA) IEA Secretariat Amsterdam, the Netherlands.

Martin, M. O., Mullis, I. V. S., Gonzalez, E. J., & Chrostowski, S. J. (2004). *TIMSS 2003 International Science Report*. TIMSS & PIRLS International Study Center, Lynch School of Education, Boston College.

Martin, M. O., Mullis, I. V. S., Gonzalez, E. J., Gregory, K. D., Smith, T. A., Chrostowski, S. J., … O'Connor, K. M. (2000). *TIMSS 1999 International Science Report*. International Study Center Lynch School of Education Boston College.

Mattern, N., & Schau, C. (2002). Gender differences in science attitude-achievement relationships over time among white middle school students. *Journal of Research in Science Teaching*, *39*(4), 324–340.

McBride, B. A., Dyer, W. J., Liu, Y., Brown, G. L., & Hong, S. (2009). The differential impact of early father and mother involvement on later student achievement. *Journal of Educational Psychology*, *101*(2), 498.

McNeal, R. (1999). Parental involvement as social capital: Differential effectiveness on science achievement, truancy, and dropping out. *Social Forces*, *78*(1), 117–144.

Merriam, S. B. (2009). *Qualitative research*. San Francisco, CA: Jossey-Bass.

Mettas, A., Karmiotis, I., & Christoforou, P. (2006). Relationship between students' self-beliefs and attitudes on science achievements in Cyprus: findings from The Third International Mathematics and Science. *Eurasia Journal of Mathematics*, *2*(1), 41–52.

Mohd Jelas, Z., Rahman, S., Baki, R., & Ahmad, J. (2005). Prestasi Akademik Mengikut Gender. *Jurnal Pendidikan*, *30*, 93–111.

Mohd Sahid, M., Mustaffa, M., & Ahmad, R. (2008). Penglibatan ibu bapa dalam membantu membuat kerja rumah (matematik) dikalangan pelajar tingkatan dua: satu tinjauan di sebuah sekolah menengah di daerah Muar. In *Seminar Kebangsaan Pendidikan Sains dan Matematik* (pp. 1–7).

Morrell, P. D., & Lederman, N. G. (1998). Students' attitudes toward school and classroom science: Are they independent phenomena? *School Science and Mathematics*, *98*(2), 76–83.

Muijs, D. (2004). *Doing quantitative research in education with SPSS*. SAGE Publications.

Mullis, I. V. S., & Martin, M. O. (2011). *TIMMS 2011 Item Writing Guidelines*.

Mullis, I. V. S., Martin, M. O., & Foy, P. (2008). *TIMSS 2007 International Mathematics Report*. (J. F. Olson, C. Preuschoff, E. Erberber, A. Arora, & J. Galia, Eds.). TIMSS & PIRLS International Study Center, Lynch School of Education, Boston College.

Mullis, I. V. S., Martin, M. O., Foy, P., & Arora, A. (2012). *TIMSS 2011 International Results in Mathematics*. TIMSS & PIRLS International Study Center, Lynch School of Education, Boston College Chestnut Hill, MA, USA and International Association for the Evaluation of Educational Achievement (IEA) IEA Secretariat Amsterdam, the Netherlands.

Mullis, I. V. S., Martin, M. O., Gonzalez, E. J., Gregory, K. D., Garden, R. A., O'Connor, K. M., … Smith, T. A. (2000). *TIMSS 1999 International Mathematics Report*. International Study Center Lynch School of Education Boston College.

Mullis, I. V. S., Martin, M. O., Minnich, C. A., Stanco, G. M., Arora, A., & Centurino, Victoria A.S. Castle, C. E. (2012). *TIMSS 2011 Encyclopedia: Education Policy and Curriculum in Mathematics and Science. Volume 1: AK*. TIMSS & PIRLS International Study Center, Lynch School of Education, Boston College Library.

Mullis, I. V. S., Martin, M. O., Ruddock, G. J., O'Sullivan, C. Y., & Preuschoff, C. (2009). *TIMSS 2011 Assessment Framework. TIMSS 2011 Assessment Frameworks*. TIMSS & PIRLS International Study Center Lynch School of Education, Boston College.

Mullis, I. V. S., & Stemler, S. E. (2002). Analyzing Gender Differences for High-achieving Students on Timss. In D. F. Robitaille & A. E. Beaton (Eds.), *Secondary Analysis of the TIMSS Data* (pp. 277–290). Dordrecht: Kluwer Academic Publishers.

Nasr, A. R., & Soltani, A. K. (2011). Attitude towards Biology and Its Effects on Student's Achievement. *International Journal of Biology*, *3*(4), 100–104.

Neuman, W. (2005). *Social research methods: Quantitative and qualitative approaches* (6th ed.). Boston: Allyn and Bacon. Retrieved from http://book-nerd.info/wp-content/uploads/pdfs/Social Research Methods Quantitative and Qualitative Approaches 6th Edition by W Lawrence Neuman - The Perfect Balance For New Researchers.pdf

Nilsen, T., & Gustafsson, J.-E. (2014). School emphasis on academic success: exploring changes in science performance in Norway between 2007 and 2011 employing two-level SEM. *Educational Research and Evaluation*, *20*(4), 308–327.

Noran Fauziah, Y. (2004). Tingkah laku buli di sekolah: Apa yang boleh kita lakukan? In *Seminar Kepengetuaan Ketiga, Universiti Malaya*.

Olatoye, R. a, & Ogunkola, B. J. (2008). Parental Involvement, Interest In Schooling And Science Achievement Of Junior Secondary School Students In Ogun State, Nigeria. *College Teaching Methods & Styles Journal*, *4*(8), 33–40.

Olson, J. F., Martin, M. O., & Mullis, I. V. S. (2008). *TIMSS 2007 Technical Report*. *Benchmarking*. TIMSS & PIRLS International Study Center Lynch School of Education, Boston College.

Oluwatelure, T. A., & Oloruntegbe, K. O. (2010). Effects of parental involvement on students' attitude and performance in science. *African Journal of …*, *4*(1), 1–9.

Osborne, J., & Dillon, J. (2008). Science education in Europe: Critical reflections. *London: Nuffield Foundation*, (January). Retrieved from http://www.fisica.unina.it/traces/attachments/article/149/Nuffield-Foundation-Osborne-Dillon-Science-Education-in-Europe.pdf\npapers2://publication/uuid/FA17ED57-71AF-429E-B7E5-D9E33DA4A538

Osborne, J., Driver, R., & Simon, S. (1998). Attitudes To Science: Issues and Concerns. *School Science Review*, *79*(288), 27–33.

Osborne, J., Simon, S., & Collins, S. (2003). Attitudes towards science: A review of the literature and its implications. *International Journal of Science Education*, *25*(9), 1049–1079.

Osborne, J., Simon, S., & Tytler, R. (2009). Attitudes Towards Science : An Update. *Annual Meeting of the American Educational Research Association*, *2007*, 1–20.

Osman, K., Iksan, Z., & Halim, L. (2007). Sikap terhadap Sains dan Sikap Saintifik di kalangan Pelajar Sains. *Jurnal Pendidikan*, *32*, 39–60.

Özdemir, E. (2003). *THE FACTORS AFFECTING SCIENCE ACHIEVEMENT OF EIGHTH GRADE TURKISH STUDENTS BASED ON THE THIRD INTERNATIONAL MATHEMATICS*. MIDDLE EAST TECHNICAL UNIVERSITY.

Pallant, J. (2013). *Spss Survival Manual* (5th ed.). McGraw-Hill Education (UK).

Papanastasiou, C. (2002). School, teaching and family influence on student attitudes toward science: Based on TIMSS data for Cyprus. *Studies in Educational Evaluation*, *28*(1), 71–86.

Papanastasiou, C., & Papanastasiou, E. C. (2004). Major Influences on Attitudes toward Science. *Educational Research and Evaluation*, *10*(3), 239–257.

Papanastasiou, C., & Papanastasiou, E. C. (2006). Modeling mathematics achievement in Cyprus. In S. J. Howie & T. Plomp (Eds.), *Contexts of learning mathematics and science: Lessons learned from TIMSS* (pp. 113–125). Routledge.

Papanastasiou, E. C., & Zembylas, M. (2004). Differential effects of science attitudes and science achievement in Australia, Cyprus, and the USA. *International Journal of Science Education*, *26*(3), 259–280.

Park, C., & Park, D. (2006). Contexts of Learning Mathematics and Science: Lessons Learned from TIMSS. In S. J. Howie & T. Plomp (Eds.), *Contexts of Learning Mathematics and Science: Lessons Learned from TIMSS* (pp. 177–194). Routledge.

Pelan Pembangunan Pendidikan Malaysia *2013-2025*. (2013). Retrieved from http://www.moe.gov.my/cms/upload_files/articlefile/2013/articlefile_file_003107.pdf

Perera, L. D. H. (2014). Parents' attitudes towards science and their children's science achievement. *International Journal of Science Education*, *36*(18), 1–29.

Phang, F. A., Abu, M. S., Ali, M. B., & Salleh, S. (2012). FAKTOR PENYUMBANG KEPADA KEMEROSOTAN PENYERTAAN PELAJAR DALAM ALIRAN SAINS: SATU ANALISIS SOROTAN TESIS.

Picou, A., Gatlin-Watts, R., & Packer, J. (1998). A Test for Learning Style Differences for the U.S. Border Population. *Texas Papers in Foreign Language Education*, *3*(2), 105.

Scheerens, J. (2005). *Review of school and instructional effectiveness research*. Retrieved from http://doc.utwente.nl/92593/1/Effective-teaching-scheerens.pdf

Schermelleh-engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the Fit of Structural Equation Models : Tests of Significance and Descriptive Goodness-of-Fit Measures. *Methods of Psychological Research Online*, *8*(2), 23–74.

Seda, C. (2007). Parental involvement unlocks children's educational potential. *Essays in Education*, *19*(1), 150–159.

Senechal, M., & Lefevre, J. (2002). Parental Involvement in the Development of Children ' s Reading Skill : A Five-Year Longitudinal Study. *Child Development*, *73*(2), 445–460.

Shaffer, D. (2008). *Social and Personality Development* (6th ed.). Cengage Learning.

Shah, R., & Goldstein, S. M. (2006). Use of structural equation modeling in operations management research: Looking back and forward. *Journal of Operations Management*, *24*(2), 148–169.

Shah, Z., Mahmood, N., & Harrison, C. (2013). Attitude towards Science Learning: An Exploration of Pakistani Students. *Journal of Turkish Science …*, *10*(2).

Sheldon, S. B., & Epstein, J. L. (2002). Improving Student Behavior and School Discipline with Family and Community Involvement. *Education and Urban Society*, *35*(1), 4–26.

Shepardson, D. P., & Pizzini, E. L. (1994). Gender, Achievement, and Perception Toward Science Activities. *School Science and Mathematics*, *94*(4), 188–193.

Shrigley, R. L. (1990). Attitude and behavior are correlates. *Journal of Research in Science Teaching*, *27*(2), 97–113.

Sidin, R., Long, J., Abdullah, K., & Mohamed, P. (2001). Pembudayaan Sains Dan Teknologi: Kesan Pendidikan dan Latihan Di Kalangan Belia Di Malaysia. *Jurnal Pendidikan*, *27*, 35–45.

Simon, S. (2000). Students' attitudes towards science. In M. Monk & J. Osborne (Eds.), *Good Practice In Science Teaching: What Research Has To Say: What research has to say* (pp. 104–119). Buckingham: Open University Press.

Simpson, R. D., & Oliver, J. S. (1985). Attitude toward science and achievement motivation profiles of male and female science students in grades six through ten. *Science Education*, *69*(4), 511–525.

Simpson, R., & Oliver, J. S. (1990). A summary of major influences on attitude toward and achievement in science among adolescent students. *Science Education*, *74*(1), 1–18.

Snyder, V. L., & Broadway, F. S. (2004). Queering high school biology textbooks. *Journal of Research in Science Teaching*, *41*(6), 617–636.

Sua, T. Y. (2007). Attitudes and achievement orientations of students towards learning of science and mathematics in English. *Kajian Malaysia*, *Jilid xxv*(1), 15–39.

Sugai, G., & Horner, R. (2001). School climate and discipline: Going to scale. In *The National Summit on the Shared Implementation of IDEA* (pp. 1–8). Washington, DC.

Susan, M. S., Lisa, L. K., Carolyn, P. E., James, A. B., & Kevin, A. K. (2010). Parent Engagement and School Readiness: Effects of the Getting Ready Intervention on Preschool Children's Social-Emotional Competencies. *Early Education and Development*, *21*(1), 125–156.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using Multivariate Statistics* (5th ed.). New York: Allyn and Bacon.

Tan, E., & Goldberg, W. (2009). Parental school involvement in relation to children's grades and adaptation to school. *Journal of Applied Developmental Psychology*, *30*(4), 442–453.

Tare, M., French, J., Frazier, B. N., Diamond, J., & Evans, E. M. (2011). Explanatory parent-child conversation predominates at an evolution exhibit. *Science Education*, *95*(4), 720–744.

Teodorović, J. (2011). Classroom and school factors related to student achievement: what works for students? *School Effectiveness and School Improvement*, *22*(2), 215–236.

Thompson, J., Jay, C., & Walter, J. K. (1998). School Discipline: Becoming Proactive, Productive, Participatory and Predictable. *Educational Horizons*, *76*(4), 195–98.

Tighezza, M. (2014). Modeling relationships among learning, attitude, self-perception, and science achievement for grade 8 Saudi students. *International Journal of Science and Mathematics Education*, *12*(4), 721–740.

Tsai, C. (2004). Conceptions of learning science among high school students in Taiwan: a phenomenographic analysis. *International Journal of Science Education*, *26*(14), 1733–1750.

Ungang, C. (2008). Penggunaan bahan bantu mengajar dalam kemahiran asas membaca di kelas pemulihan: Kajian kes di lima buah sekolah daerah Serian. *Jurnal Penyelidikan IPBL*, *8*, 80–96.

Uzun, N. B., Gelbal, S., & Ogretmen, U. (2010). Modeling The Relationship Between TIMSS-R Science Achievement and Affective Characteristics and Comparing the Model According to Gender. *Kastamonu Education Journal*, *18*(2), 531–544.

Välijärvi, J., Kupari, P., Linnakylä, P., Reinikainen, P., Sulkunen, S., Törnroos, J., & Arffman, I. (2007). *The Finnish success in Pisa-and some reasons behind it: Pisa 2003 (2)*. Institute for Educational Research, University of Jyväskylä.

Vartanian, T. P. (2011). *Secondary Data Analysis*. Oxford University Press.

Wang, J. (2001). TIMSS primary and middle school data: Some technical concerns. *Educational Researcher*, *30*(6), 17–21.

Wang, M. C., Haertel, G. D., & Walberg, H. J. (1993). Toward a Knowledge Base for School Learning. *Review of Educational Research*, *63*(3), 249–294.

Webster, B. J., & Fisher, D. L. (2000). Accounting for Variation in Science and Mathematics Achievement: A Multilevel Analysis of Australian Data Third

Planty, M., DeVoe, J., Owings, J., & Chandler, K. (2005). *An Examination of the Conditions of School Facilities Attended by 10th-Grade Students in 2002. ED TAB. NCES 2006-302. National Center for Education Statistics*.

Preuschoff, A. C. (2011). *Using TIMSS and PIRLS to Construct Global Indicators of Effective Environments for Learning*. *ProQuest Dissertations and Theses*.

Ramseier, E. (1999). Task Difficulty and Curricular Priorities in Science: Analysis of Typical Features of the Swiss Performance in TIMSS. *Educational Research and Evaluation*, *5*(2), 105–126.

Rangvid, B. (2003). *Educational peer effects quantile regression evidence from Denmark with PISA2000 data*. *Do Schools Matter* (Vol. 45).

Ratelle, C., & Larose, S. (2005). Perceptions of parental involvement and support as predictors of college students' persistence in a science curriculum. *Journal of Family* ….

Renfrew, J. W. (1997). *Aggression and its causes: A biopsychosocial approach*. Oxford University Press.

Rosén, M., Gustafsson, J., & Hansen, K. (2013). Influences of early home factors on later achievement in reading, math and science: An analysis of the Swedish data from PIRLS and TIMSS 2011. In *IEA International Research Conference* (Vol. 5).

Roth, K., Druker, S., & Garnier, H. (2006). Teaching Science in Five Countries: Results From the TIMSS 1999 Video Study. Statistical Analysis Report. NCES 2006-011. *National Center for* …. Retrieved from http://eric.ed.gov/?id=ED491193

Rumberger, R. W. (1995). Dropping out of middle school: A multilevel analysis of students and schools. *American Educational Research Journal*, *32*(3), 583–625.

Samsudin, M., Md. Zain, A., & Ismail, Z. (2002). Fizik; Adakah hanya untuk lelaki sahaja? In *Kertas Kerja South East Asian Regional Symposium on Science and Technology*.

Sanchez, C. A., & Wiley, J. (2010). Sex differences in science learning: Closing the gap through animations. *Learning and Individual Differences*, *20*(3), 271–275.

International Mathematics and Science Study (Timss). *School Effectiveness and School Improvement*, *11*(3), 339–360.

Welsh, W. N. (2000). The Effects of School Climate on School Disorder. *The Annals of the American Academy of Political and Social Science*, *567*(1), 88–107.

Willms, J. D., & Somer, M.-A. (2001). Family, Classroom, and School Effects on Childrens Educational Outcomes in Latin America. *School Effectiveness and School Improvement*, *12*(4), 409–445.

Wolf, R. M. (1998). Validity issues in international assessments. *International Journal of Educational Research*, *29*(6), 491–501.

Yahaya, A., & Baharom, B. (2010). Persekitaran keluarga dan kesannya terhadap tingkah laku devian remaja. Retrieved from http://eprints.utm.my/10616/

Yahaya, A., & Ma'alip, H. (2010). *Estim Kendiri Remaja*. UTM Press.

Yahaya, A., Yahaya, N., & Bahari, M. (2004). Pengaruh Affect Related Characteristic, Kesan Tanggapan Bahaya Dan Gaya Asuhan Ibu Bapa Terhadap Salah Laku Remaja Di Zon Skudai, Negeri Johor. *Eprints.utm.my*. Retrieved from http://eprints.utm.my/10218/4/arc.pdf

Zamri, M., & N Suriya, N. M. (2007). Strategi Pembelajaran Biologi di kalangan Pelajar Sekolah Menengah. *Jurnal Pendidikan*, *32*, 153–175.

Zhang, D., & Campbell, T. (2011). The psychometric evaluation of a three-dimension elementary science attitude survey. *Journal of Science Teacher Education*, *22*(7), 595–612.

Zhang, D., Hsu, H., & Kwok, O. (2011). The impact of basic-level parent engagements on student achievement: Patterns associated with race/ethnicity and SES. *Journal of Disability Policy Studies*.

Zhao, H., & Akiba, M. (2009). School expectations for parental involvement and student mathematics achievement: a comparative study of middle schools in the US and South Korea. *Compare: A Journal of Comparative and International Education*, *39*(3), 411–428.