

The Hemingway

Por favor utiliza esta encuesta para contarnos a cerca de ti. Lee cada afirmación y pinta el círculo con la respuesta que describa mejor qué tan cierto es para ti. Esa afirmación o hasta qué punto estás de acuerdo con ella. Si una afirmación no te resulta clara, pide una explicación. Si aún te resulta confusa, coloca un signo de pregunta "?".

"Que tan cierta es esta afirmación a cerca de ti?"

	Para nada	No realmente	Cierta en parte	Cierta	absolutamente cierta	? No clara
1. Me gusta andar dando vueltas por ahí en el lugar donde vivo (por ejemplo mi vecindario).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Estar un tiempo con mis amigos es la mejor parte de mi día.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Puedo nombrar cinco cosas que a la gente le gusta de mí.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Mi familia y yo nos divertimos juntos.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Me divierto mucho con mi/s hermano/s. (no contestes esta pregunta si no tienes hermanos)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Me esfuerzo en la escuela.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Mis compañeros me molestan.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Me importa lo que mis maestros piensen de mí.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Tendré una buena vida por delante.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Disfruto dedicando un tiempo para leer solo.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Para nada	No Realmente	Verdadera en parte	Verdadera	Absolutamente Verdadera
11. Me gusta pasar mucho tiempo con los chicos de mi vecindario.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Tengo amigos muy cercanos en los que confío plenamente.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Mi persona no tiene casi nada único o especial.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Es importante que mis padres confíen en mí.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Me siento cercano a mi/s hermano/s. (no contestes esta pregunta si no tienes hermanos)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Disfruto estando en la escuela.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. Me agradan todos mis compañeros de grado.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. Me desagradan varios maestros en mi escuela.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. Que me vaya bien en la escuela me ayudará a conseguir las cosas que deseo en la vida.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Me gusta leer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Me llevo bien con todos los chicos de mi vecindario.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Compartir tiempo con mis amigos es una parte importante de mi vida.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Puedo nombrar tres cosas que a los otros chicos les gusta de mí.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Para nada	No Realmente	Verdadera en parte	Verdadera	Absolutamente Verdadera
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| 53. Tengo intereses o habilidades únicas que me hacen interesante. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 54. Mis padres me importan mucho. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 55. Lo que hago ahora no va afectar mi futuro. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 56. Que me vaya bien en la escuela es importante para mí. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 57. Pocas veces peleo o discuto con los otros chicos en la escuela. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 58. Disfruto compartiendo tiempo con mi padre. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 59. Disfruto compartiendo tiempo con mi madre. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 60. Me gusta conocer chicos de otros grupos culturales o raciales. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 61. Yo paso mucho tiempo con mi pololo(a). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 62. Mi religión es muy importante para mí. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 63. Mi madre y yo somos muy unidas(os). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 64. Mi padre y yo somos muy unidos. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 65. Me gustaría conocer más gente de diferentes grupos culturales. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 66. Yo tengo un(a) pololo(a) el(la) cual es muy importante para mí. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 67. Mi padre se preocupa mucho por mí. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 68. Mi madre se preocupa mucho por mí. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 69. Me gusta conocer gente que sea culturalmente diferente a mí. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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- | | Para nada | No Realmente | Verdadera en parte | Verdadera | Absolutamente Verdadera |
|---|-----------------------|-----------------------|---------------------------|-----------------------|--------------------------------|
| 70. Realmente no me preocupa tener un(a) pololo(a). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 71. Asisto a un servicio religioso (como la iglesia) regularmente. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 72. Mi padre y yo discutimos mucho. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 73. Mi madre y yo discutimos mucho. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 74. Yo comparto con mi pololo(a) mis preocupaciones y problemas. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 75. Soy una persona religiosa o con fe. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 76. Yo paso tanto tiempo como puedo con mi pololo(a). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 77. Hablo con mi madre a cerca de cosas y problemas muy personales. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 78. Hablo con mi padre a cerca de cosas y problemas muy personales. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
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Hemingway Measure of Adolescent Connectedness (Chinese version)

海明威青少年聯繫感量表

Hemingway—Measure of Adolescent Connectedness (Copyright, Karcher, 2007; Karcher & Sass, 2010).

Instructions: First, tell us, do you have any brothers or sisters? No Yes (circle one).

Next, please use this survey to tell us about yourself. Read each statement. CIRCLE the number that best describes how true that statement is for you or how much you agree with it. If a statement is unclear to you, ask for an explanation. If it still unclear, put a "?".

How TRUE about you is each sentence?"

Not at all=1 Not really=2 Sort of true=3 True=4 Very true=5

指示：首先，請告訴我們，你有兄弟姊妹嗎？ 沒有 有 (請圈選一個答案)

然後，請透過這份問卷，告訴我們更多關於你的東西。請詳讀每一個句子，看看那些句子對你來說有多真確或者你有多贊同那些句子，然後圈選出旁邊最合適的數字。如果你不清楚句子的意思，請要求老師解釋。如果你還是有疑問，請在句子後打上問號「？」。

「每一個句子對你來說有多真確？」

完全不真確 1、不太真確 2、尚算真確 3、真確 4、非常真確 5。

	完全不真確	不太真確	尚算真確	真確	非常真確
AC1. 我喜歡在我家附近的地方 (例如我的鄰里) 玩樂。 I like hanging out around where I live (like my neighborhood).	1	2	3	4	5
AC2. 我感到花時間和朋友一起不是這麼重要。 Spending time with friends is not so important to me.	1	2	3	4	5
AC3. 我可以說出五項朋友喜歡我的原因。 I can name 5 things that my friends like about me.	1	2	3	4	5
AC4. 我與我的家人常常一起玩樂。 My family has fun together.	1	2	3	4	5
AC5. 我與兄弟 / 姊妹一起的時候有很多樂趣。(如果你沒有兄弟姊妹，請不要理會此問題。) I have a lot of fun with my brother(s) or sister(s). (Skip if you have none.)	1	2	3	4	5
AC6. 我在學校努力學習。 I work hard at school.	1	2	3	4	5
AC7. 我的同學時常打擾我。 My classmates often bother me.	1	2	3	4	5
AC8. 我在意老師如何看待我。 I care what my teachers think of me.	1	2	3	4	5
AC9. 我會有很好的將來。 I will have a good future.	1	2	3	4	5
AC10. 我喜歡花時間獨自看書。 I enjoy spending time by myself reading.	1	2	3	4	5

AC11	我花很多時間與我家附近的年輕人在一起。 I spend a lot of time with kids around where I live.	1	2	3	4	5
AC12.	我有非常親密並且我完全信任的朋友。 I have friends I'm really close to and trust completely.	1	2	3	4	5
AC13	我沒有什麼太獨特的地方。 There is not much that is unique or special about me.	1	2	3	4	5
AC14	讓父母信任我是一件重要的事情。 It is important that my parents trust me.	1	2	3	4	5
AC15	我與我的兄弟姊妹關係密切。(如果你沒有兄弟姊妹，請不要理會此問題。) I feel close to my brother(s) or sister(s). (Skip if you have none.)	1	2	3	4	5
AC16	我喜歡上學。 I enjoy being at school.	1	2	3	4	5
AC17	我很喜歡所有與我同年級的同學。 I like pretty much all of the other kids in my grade.	1	2	3	4	5
AC18	我與一些老師相處不來。 I do not get along with some of my teachers.	1	2	3	4	5
AC19	在學校表現好會幫助我將來的發展。 Doing well in school will help me in the future.	1	2	3	4	5
AC20.	我喜歡閱讀。 I like to read.	1	2	3	4	5
AC21.	我和鄰居年輕人相處得來。 I get along with the kids in my neighborhood.	1	2	3	4	5
AC22.	花時間和朋友一起是我人生中的一件大事。 Spending time with my friends is a big part of my life.	1	2	3	4	5
AC23.	我可以說出其他年輕人喜歡我的三個原因。 I can name 3 things that other kids like about me.	1	2	3	4	5
AC24.	我享受與我父母在一起的時間。 I enjoy spending time with my parents.	1	2	3	4	5
AC25	我享受與我兄弟 / 姊妹一起的時間。(如果你沒有兄弟姊妹，請不要理會此問題。) I enjoy spending time with my brothers/sisters. (Skip if you have none.)	1	2	3	4	5
AC26	我在學校很多時候都感到沉悶。 I get bored in school a lot.	1	2	3	4	5
AC27	我喜歡與我的同學一起工作。 I like working with my classmates.	1	2	3	4	5
AC28	我想得到老師的尊重。 I want to be respected by my teachers.	1	2	3	4	5
AC29	我在學校以外的地方做事，為我的將來做準備。 I do things outside of school to prepare for my future.	1	2	3	4	5
AC30.	我永遠不會在空閒的時間讀書。 I never read books in my free time.	1	2	3	4	5

AC31.	我經常在我家附近玩耍或做一些事情。 I often spend time playing or doing things in my neighborhood.	1	2	3	4	5
AC32.	我和我的朋友公開談論我們個人的事情。 My friends and I talk openly with each other about personal things.	1	2	3	4	5
AC33	我真的喜歡我自己。 I really like who I am.	1	2	3	4	5
AC34.	我和我的父母對對很多事有不同意見。 My parents and I disagree about many things.	1	2	3	4	5
AC35.	我盡可能花時間和我的兄弟 / 姊妹一起。(如果你沒有兄弟姊妹，請不要理會此問題。) I try to spend time with my brothers/sisters when I can. (Skip if you have none.)	1	2	3	4	5
AC36.	我在學校表現良好。 I do well in school.	1	2	3	4	5
AC37.	我和同班其他同學相處融洽。 I get along well with the other students in my classes.	1	2	3	4	5
AC38.	我嘗試和老師相處。 I try to get along with my teachers.	1	2	3	4	5
AC39.	我在學校做很多事情，為我的將來做準備。 I do lots of things in school to prepare for my future.	1	2	3	4	5
AC40	空閒的時候，我時常閱讀。 I often read when I have free time.	1	2	3	4	5
AC41	我時常與我鄰居年輕人一起玩樂。 I hang out a lot with kids in my neighborhood.	1	2	3	4	5
AC42.	我盡可能花最多的時間和朋友一起。 I spend as much time as I can with my friends.	1	2	3	4	5
AC43	我有特別的嗜好、才華或技能。 I have special hobbies, skills, or talents.	1	2	3	4	5
AC44	父母和我相處融洽。 My parents and I get along well.	1	2	3	4	5
AC45	我盡量避免與兄弟 / 姊妹一起。(如果你沒有兄弟姊妹，請不要理會此問題。) I try to avoid being around my brother/sister(s). (Skip if you have none.)	1	2	3	4	5
AC46	我在學校的時候，感覺自己還不錯。 I feel good about myself when I am at school.	1	2	3	4	5
AC47	我的同學都喜歡我。 I am liked by my classmates.	1	2	3	4	5
AC48	我經常努力爭取老師的信任。 I always try hard to earn my teachers' trust.	1	2	3	4	5
AC49	我時常考慮我的將來。 I think about my future often.	1	2	3	4	5
AC50.	一般來說，我喜歡我的老師。 I usually like my teachers.	1	2	3	4	5

AC51.	我的鄰居都很沉悶。 My neighborhood is boring.	1	2	3	4	5
AC52.	我的朋友和我花很多時間談論事情。 My friends and I spend a lot of time talking about things.	1	2	3	4	5
AC53.	我有獨特的興趣或技能，所以令我成爲一個有趣的人。 I have unique interests or skills that make me interesting.	1	2	3	4	5
AC54.	我十分關心我的父母。 I care about my parents very much.	1	2	3	4	5
AC55	我現在做的事情不會影響我的將來。 What I do now will not affect my future.	1	2	3	4	5
AC56	在學校表現好對我很重要。 Doing well in school is important to me.	1	2	3	4	5
AC57	我在學校很少和其他同學打架或爭拗。 I rarely fight or argue with the other kids at school.	1	2	3	4	5

Subscales	Items
鄰里 Neighborhood	1, 11, 21, 31, 41, 51
朋友 Friends	2, 12, 22, 32, 42, 52
現在的我 Self in the Present	3, 13, 23, 33, 43, 53
父母 Parents	4, 14, 24, 34, 44, 54
兄弟姊妹 Siblings	5, 15, 25, 35, 45
學校 School	6, 16, 26, 36, 46, 56
同輩 Peers	7, 17, 27, 37, 47, 57
老師 Teachers	8, 18, 28, 38, 48, 50
將來的我 Self in the Future	9, 19, 29, 39, 49
閱讀 Reading	10, 20, 30, 40

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Karcher, M. J. (2007). *The Hemingway—Measure of Adolescent Connectedness: A manual for interpretation and scoring*. Unpublished manuscript, University of Texas at San Antonio. Retrieved June 12, 2007 from www.adolescentconnectedness.com

- (36) 我在學校表現良好。
(37) 我和班上同學相處融洽。
(38) 我試著和老師和睦相處。
(39) 在學校 我做許多事情準備我的未來。
(40) 閒暇時 我時常閱讀。

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- (41) 我時常和年 相近的鄰居一起玩耍。
(42) 我儘可能花許多時間和朋友在一起。
(43) 我有特別的嗜好、才華或技能。
(44) 父母和我相處融洽。
(45) 我花許多時間和兄弟姐妹相處。

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- (46) 當我在學校的時候 我覺得自己表現得還不錯。
(47) 在學校我經常和其他同學打架或起爭執。
(48) 我喜歡去認識不同文化或種族背景的人。
(49) 隨著年 的增長 我對未來有許多期待。
(50) 基於興趣 一個禮拜我至少會主動看書一次。

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- (51) 我家附近很無聊。
(52) 我的朋友和我花許多時間談論事情。
(53) 我有獨特的興趣或技能 這使我成為一個有趣的人。
(54) 我喜歡花時間和爸爸相處。
(55) 我喜歡花時間和媽媽相處。

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- (56) 在學校表現好對我很重要。
(57) 我的同學喜歡我。
(58) 我父親和我很親近。
(59) 我母親和我很親近。
(60) 我希望認識更多不同文化背景的朋友。

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- (61) 我的信仰對我很重要。
(62) 我父親很關心我。
(63) 我母親很關心我。
(64) 當別人取笑我或給我難堪時 我非常生氣。
(65) 我參加宗教活動(如祭祖、拜拜或上教堂)至少一個月一次。

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- (66) 我父親和我經常起爭執。
(67) 我母親和我經常起爭執。
(68) 當別人批評我時我會非常生氣。
(69) 我是一個有虔誠信仰的人(如 崇敬祖先或其他宗教信仰)。
(70) 我會和我父親談論私事或個人的困擾。

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- (71) 我會和我母親談論私事或個人的困擾。
(72) 當別人對我不友善或不禮貌時我相當難過。
(73) 我喜歡去認識和我不同文化背景的人。

海明威問卷計分方式

聯結性各分測 的計分方式 將分測 中每一個 目的分數相加 然後在將所加出的總分除以這分測 的 數。如此可得到一個算數平均數 將所得出的算數平均數和Karcher & Lee (2001)文章中第一個圖表(Table 1)所列出的算數平均數相比較〈男生和男生相比 女生和女生相比〉則可了解該生的聯結性是低、平均、還是於其他同年 的學生。注意 一些以負 敘述的 目要在加總之前先把分數轉向〈如下〉。

分測

居住附近 1, **11**, 21, 31, 41, **51**

計分 11, 51分數轉向 然後將這六 的分數相加 所加總分除以六。

朋友 2, 12, 22, 32, 42, 52

計分 將這六 的分數相加 所加總分除以六。

現在我〈自信〉 3, 13, 23, 33, 43, 54

計分 將這六 的分數相加 所加總分除以六。

父母 4, 14, 24, 34, 44

計分 將這五 的分數相加 所加總分除以五。

兄弟姊妹 5, 15, 25, 35, 45

計分 將這五 的分數相加 所加總分除以五。

學校 6, 16, **26**, 36, 46, 56

計分 26分數轉向 然後將這六 的分數相加 所加總分除以六。

同儕 7, 17, 27, 37, **47**, 57

計分 7, 47分數轉向 然後將這六 的分數相加 所加總分除以六。

老師 8, 18, 28, 38

計分 將這四 的分數相加 所加總分除以四。

未來我 9, 19, 29, 39, 49

計分 將這五 的分數相加 所加總分除以五。

閱讀 10, 20, **30**, 40, 50

計分 30分數轉向 然後將這五 的分數相加 所加總分除以五。

父親 54, 58, 62, **66**, 70

計分 66分數轉向 然後將這五 的分數相加 所加總分除以五。

母親 55, 59, 63, **67**, 71

計分 67分數轉向 然後將這五 的分數相加 所加總分除以五。

宗教 61, 65, 69

計分 將這三 的分數相加 所加總分除以三。

對批評〈不聯結〉的反應 **64, 68, 72**

計分 64, 68, 72分數轉向 然後將這三 的分數相加 所加總分除以三。

對文化不同的青少年 48, 60, 73

計分 將這三 的分數相加 所加總分除以三。

聯合分測 一自我 3, 9, 13, 19, 23, 29, 33, 39, 43, 49, 53

計分 將這十一 的分數相加 所加總分除以十一。

聯合分測 一家庭 4, 5, 14, 15, 24, 25, 34, 35, 44, 45

計分 將這十 的分數相加 所加總分除以十。

聯合分測 一學校 6, 8, 16, 18, **26**, 28, 36, 38, 46, 56

計分 26分數轉向 然後將這十 的分數相加 所加總分除以十。

附註 數字的 目表示該 為負向敘述其分數必 轉向 5變成1 4變成2 2
變成4 1變成5。

如有任何疑問或分享您的結果 請聯絡

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Le Hemingway
Mesure de l'adolescent

S'il vous plaît, utilisez ce questionnaire pour nous parler de vous. Lisez chaque phrase. Encerclez le numéro qui représente comment bien la phrase te décrit ou combien vous êtes d'accord avec la phrase. Si une phrase n'est pas claire, demandez une explication. Si vous ne comprenez toujours pas la phrase, mettez un « ? ».

1. J'aime bien traîner dans mon quartier.
2. Passer du temps avec mes copains ne m'est pas si important.
3. Je peux nommer cinq choses que mes amis aiment en moi.
4. Ma famille s'amuse ensemble.
5. Je m'amuse beaucoup avec mon (mes) frère(s) ou ma (mes) sœur(s). (Ne pas répondre si vous êtes enfant unique)
6. Je travaille fort à l'école.
7. Mes camarades de classe me dérangent souvent.
8. Je me soucie de ce que mes profs pensent de moi.
9. J'aurai un bon avenir.
10. J'aime passer du temps tout seul à lire.
11. Je passe beaucoup de temps avec les autres jeunes près de chez moi.
12. J'ai des amis intimes dans lesquels j'ai entièrement confiance.
13. Il n'y a pas beaucoup de particulièrement unique ou spécial de moi.
14. Il est important que mes parents aient confiance en moi.
15. Je me sens proche de mes frère(s) ou sœur(s). (Ne pas répondre si vous êtes enfant unique)
16. J'aime être à l'école.
17. J'aime bien presque tous les autres élèves dans ma classe.
18. Je ne m'entends pas avec certains de mes enseignants.
19. Réussir à l'école m'aidera dans l'avenir.
20. J'aime lire.
21. Je m'entends bien avec les autres jeunes dans mon quartier.
22. Passer du temps avec mes amis est un aspect important de ma vie.
23. Je peux nommer trois choses que les autres jeunes aiment en moi.
24. J'aime passer du temps avec mes parents.
25. J'aime passer du temps avec mes (mon) frère(s) / mes (ma) sœur(s).
26. Je m'ennuie souvent à l'école.
27. J'aime travailler avec mes camarades de classe.
28. Je veux être respecté par mes enseignants.
29. Je fais des choses à l'extérieur de l'école pour me préparer pour mon avenir.
30. Je ne lis jamais de livre dans mon temps libre.
31. Je passe souvent du temps à jouer ou à faire des choses dans mon quartier.
32. Mes amis et moi, nous discutons ouvertement des choses intimes.
33. J'aime vraiment la personne que je suis.
34. Mes parents et moi ne sommes pas d'accord sur plusieurs choses.

35. J'essaie de passer du temps avec (mon) frère(s) / mes (ma) sœur(s) quand je peux.
(Ne pas répondre si vous êtes enfant unique)
36. Je réussis bien à l'école.
37. Je m'entends bien avec les autres élèves de ma classe.
38. J'essaie de m'entendre bien avec mes enseignants.
39. Je fais plein de choses à l'école afin de me préparer pour mon avenir.
40. Souvent je lis quand j'ai du temps libre.
41. Je traîne souvent avec les autres jeunes dans mon quartier.
42. Je passe autant de temps que je peux avec mes amis.
43. J'ai des passe-temps, des habilités ou des talents particuliers.
44. Mes parents et moi, nous nous entendons bien.
45. J'essaie d'éviter être autour de mes (mon) frère(s) / mes (ma) sœur(s). (Ne pas répondre si vous êtes enfant unique)
46. Je me sens bien de moi-même quand je suis à l'école.
47. Mes camarades de classe m'aiment.
48. J'essaie toujours très fort de gagner la confiance de mes enseignants.
49. Je pense souvent à mon avenir.
50. D'habitude j'aime mes enseignants.
51. Mon quartier est ennuyeux.
52. Mes amis et moi passons beaucoup de temps à bavarder.
53. J'ai des goûts et des talents particuliers qui font de moi quelqu'un d'intéressant.
54. Je me soucie beaucoup de mes parents.
55. Ce que je fais maintenant n'affectera pas mon avenir
56. Réussir à l'école est important pour moi.
57. Je me dispute rarement avec les autres élèves à l'école.

Pour les questions suivantes, ne répondez pas aux questions **mère** ou **père** s'il ou elle est décédé(e). Si vous habitez avec un (une) gardien(ne) ou de la parenté, répondez utilisant **mère**.

58. J'aime passer le temps avec mon père.
59. J'aime passer le temps avec ma mère.
60. J'aime apprendre à connaître des jeunes d'autres groupes culturels ou raciaux.
61. Je passe beaucoup de temps avec mon chum/ma blonde. (Version Canada)
(version France - mon petit ami/ma petite amie) (boyfriend/girlfriend)
62. Ma religion est importante pour moi.
63. Ma mère et moi sommes assez proches.
64. Mon père et moi sommes assez proches.
65. J'aimerais connaître plus de gens d'autres groupes culturels.
66. J'ai un chum/une blonde qui est très important(e) pour moi. (Version Canada)
(version France - mon petit ami/ma petite amie) (boyfriend/girlfriend)
67. Mon père se soucie beaucoup de moi.
68. Ma mère se soucie beaucoup de moi.
69. J'aime apprendre à connaître des gens qui sont culturellement différent de moi.
70. Avoir un chum ou une blonde m'est indifférent. (Version Canada) (version France
- mon petit ami/ma petite amie) (boyfriend/girlfriend)

71. J'assiste à un service religieux (tel qu'une église) régulièrement.
72. Mon père et moi, nous nous disputons souvent.
73. Ma mère et moi, nous nous disputons souvent.
74. Je partage mes soucis avec mon chum/ma blonde. (Version Canada) (version France - mon petit ami/ma petite amie) (boyfriend/girlfriend)
75. Je suis une personne religieuse ou fidèle.
76. Je passe autant de temps que je peux avec mon chum/ma blonde. (Version Canada) (version France - mon petit ami/ma petite amie) (boyfriend/girlfriend)
77. Je parle avec ma mère de choses très personnelles et de mes problèmes.
78. Je parle avec mon père de choses très personnelles et de mes problèmes.

Hemingway Paauglių susietumo vertinimas

M.J.Karcher, Ed. M. dr., Ph. Dr., San Antonio Teksaso universitetas

Vardas _____ Data _____ Numeris _____

Lytis: Vyras Moteris Klase: 6 7 8 9 10 11

Rasė / Etinė grupė:

Baltasis Juodasis Lotynų amerikietis Azijietis Dviejų rasių Kita _____

Su kuo gyvenate: Su mama Su tėčiu Su abiem tėvais Kita _____

Prašau atsakyti į žemiau pateiktus klausimus tam, kad papasakotum apie save. Perskaityk kiekvieną teiginį. Pažymėk skaičių, kuris geriausiai nurodo, kiek šis teiginys tiksliai tave apibūdina arba kiek tu su juo sutinki. Jeigu teiginys tau neaiškus, paklausk tyrėjo. Jeigu vis tiek lieka neaišku, pažymėk skiltyje, kurioje nurodytas „?“

Kaip tiksliai Tave apibūdina kiekvienas teiginys	Visiškai netinka	Netinka	Iš dalies tinka	Tinka	Visiškai netinka	Neaiškus, nesuprantamas
1. Man dažnai patinka lankytis svečiuose.	1	2	3	4	5	„?“
2. Man nėra svarbu leisti laiką su draugais.	1	2	3	4	5	„?“
3. Galiu išvardinti 5 dalykus, esančius manyje, kurie patinka kitiems.	1	2	3	4	5	„?“
4. Mums smagu kartu šeimoje.	1	2	3	4	5	„?“
5. Man smagu kartu su broliais/ sesėmis (nežymėk jei esi vienturtis/ - è)	1	2	3	4	5	„?“
6. Mokykloje aš sunkiai dirbu.	1	2	3	4	5	„?“
7. Mano klasės draugai man dažnai įgrista.	1	2	3	4	5	„?“
8. Man rūpi, ką mano mokytojai galvoja apie mane.	1	2	3	4	5	„?“
9. Mano ateitis bus gera.	1	2	3	4	5	„?“
10. Man patinka leisti laiką vienam, skaitant knygas.	1	2	3	4	5	„?“
11. Daug laiko leidžiu su kaimynystėje gyvenančiais vaikais.	1	2	3	4	5	„?“
12. Mano draugai iš tikrųjų man artimi ir aš visiškai jais pasitikiu.	1	2	3	4	5	„?“
13. Manyje nėra daug kažko ypatingo ar nepakartojamo.	1	2	3	4	5	„?“
14. Man svarbu, kad tėvai manimi pasitiki.	1	2	3	4	5	„?“
15. Aš jaučiuosi artimas su broliu (-iais)/	1	2	3	4	5	„?“

16. Man patinka mokykloje.	1	2	3	4	5	„?“
17. Man patinka beveik visis mano klasės mokiniai.	1	2	3	4	5	„?“
18. Aš nelabai sutariu su kažikuriais savo mokytojais.	1	2	3	4	5	„?“
19. Geri pasiekimai mokykloje man padės ateityje.	1	2	3	4	5	„?“
20. Man patinka skaityti.	1	2	3	4	5	„?“
21. Gerai sutariu su kaimynystėje gyvenančiais vaikais.	1	2	3	4	5	„?“
22. Didelę mano gyvenimo dalį užima leisti laiką su draugais.	1	2	3	4	5	„?“
23. Galiu išvardinti 3 dalykus, esančius manyje, kurie patinka kitiems.	1	2	3	4	5	„?“
24. Man patinka leisti laiką su tėvais.	1	2	3	4	5	„?“
25. Man patinka leisti laiką su broliais/ seserimis (nežymėk, jei esi vienturtis/ - ė)	1	2	3	4	5	„?“
26. Man labai nuobodu mokykloje.	1	2	3	4	5	„?“
27. Man patinka bendrauti su klasės draugais.	1	2	3	4	5	„?“
28. Noriu, kad mokytojai mane gerbtų.	1	2	3	4	5	„?“
29. Ruošdamasis ateičiai, aš daug dirbu už mokyklos ribų.	1	2	3	4	5	„?“
30. Laisvalaikiu niekada neskaitau knygų.	1	2	3	4	5	„?“
31. Dažnai leidžiu laiką žaisdamas ar kažką veikiu su kaimynų vaikais.	1	2	3	4	5	„?“
32. Su savo draugais aš atvirai kalbuosi apie asmeninius dalykus.	1	2	3	4	5	„?“
33. Aš tikrai pats sau patinku.	1	2	3	4	5	„?“
34. Mano ir tėvų nuomonė skiriasi dėl daugelio dalykų.	1	2	3	4	5	„?“
35. Stengiuosi kuo daugiau laiko praleisti su broliais/ seserimis (nežymėk, jei esi vienturtis/ - ė)	1	2	3	4	5	„?“
36. Mokykloje man gerai sekasi.	1	2	3	4	5	„?“
37. Gerai sutariu su klasės mokiniais.	1	2	3	4	5	„?“
38. Stengiuosi sutarti su savo mokytojais.	1	2	3	4	5	„?“
39. Aš daug dalykų darau tam, kad pasiruoščiau savo ateičiai.	1	2	3	4	5	„?“
40. Kai turiu laisvo laiko, aš dažnai skaitau.	1	2	3	4	5	„?“
41. Dažnai lankausi pas kaimynystėje gyvenčius vaikus.	1	2	3	4	5	„?“
42. Kiek tik galiu leidžiu laiką su draugais	1	2	3	4	5	„?“
43. Turiu ypatingų pomėgių, įgūdžių, gebėjimų.	1	2	3	4	5	„?“
44. Gerai sutariu su savo tėvais.	1	2	3	4	5	„?“
45. Stengiuosi išvengti buvimo su broliais/ seserimis (nežymėk, jei esi vienturtis)	1	2	3	4	5	„?“
46. Mokykloje gerai jaučiuosi.	1	2	3	4	5	„?“

pasitikėjimą.						
49. Dažnai galvoju apie savo ateitį.	1	2	3	4	5	„?“
50. Man patinka mano mokytojai.	1	2	3	4	5	„?“
51. Mano kaimynai nuobodūs.	1	2	3	4	5	„?“
52. Praleidžiu daug laiko su draugais, aptarinėdamas įvairius reikalus.	1	2	3	4	5	„?“
53. Dėl savo ypatingų interesų ar įgūdžių esu įdomus kitiems.	1	2	3	4	5	„?“
54. Labai rūpinuosi savo tėvais.	1	2	3	4	5	„?“
55. Mano dabartiniai pasiekimai neturės reikšmės mano ateičiai.	1	2	3	4	5	„?“
56. Man svarbūs pasiekimai mokykloje.	1	2	3	4	5	„?“
57. Retai kovoju ar ginčijuosi su kitais vaikais mokykloje.	1	2	3	4	5	„?“

Palik neatsakytus klausimus apie mamą ir tėtį, jeigu jie mirę. Jeigu gyveni su giminėmis ar globėjais – įvertink teiginius apie mamą.

58. Man patinka leisti laiką su tėčiu.	1	2	3	4	5	„?“
59. Man patinka leisti laiką su mama.	1	2	3	4	5	„?“
60. Man patinka pažintys su kitos kultūros ar tautybės vaikais.	1	2	3	4	5	„?“
61. Daug laiko praleidžiu su savo Drauge/ Draugu.	1	2	3	4	5	„?“
62. Man svarbi mano religija.	1	2	3	4	5	„?“
63. Su mama esu gana artimas/ -a.	1	2	3	4	5	„?“
64. Su tėčiu esu gana artimas/ -a.	1	2	3	4	5	„?“
65. Norėčiau daugiau pažinti žmones iš skirtingų kultūrinių grupių.	1	2	3	4	5	„?“
66. Mano Draugas/ Draugė man labai svarbus.	1	2	3	4	5	„?“
67. Mano tėvas labai manimi rūpinasi.	1	2	3	4	5	„?“
68. Mano mama labai manimi rūpinasi.	1	2	3	4	5	„?“
69. Man patinka pažinti žmones, kurie skiriasi nuo manęs savo kultūra, tautybe.	1	2	3	4	5	„?“

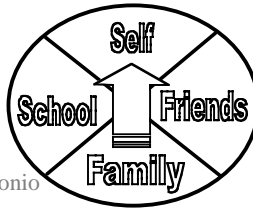
Drauge.						
71. Aš reguliariai lankausi religinėse apeigose (bažnyčioje, sinagogoje, mečetėje).	1	2	3	4	5	„?“
72. Daug ginčijuosi su tėčiu.	1	2	3	4	5	„?“
73. Daug ginčijuosi su mama.	1	2	3	4	5	„?“
74. Savo rūpesčiais ir reikalais dalinuosi su Drauge/ Draugu.	1	2	3	4	5	„?“
75. Esu religingas ir tikinti žmogus.	1	2	3	4	5	„?“
76. Kiek tik galiu leidžiu laiką su Drauge/ Draugu.	1	2	3	4	5	„?“
77. Su mama pasikalbu apie labai asmeninius dalykus ir savo problemas.	1	2	3	4	5	„?“
78. Su tėčiu pasikalbu apie labai asmeninius dalykus ir savo problemas.	1	2	3	4	5	„?“

Dėkojame !!!

The Hemingway

MEASURE OF LATE ADOLESCENT
CONNECTEDNESS (COLLEGE MAC 4)

M. J. Karcher, Ed.D., Ph.D., University of Texas ★ San Antonio



Name/Number: _____ Date: _____

Sex: Male__ Female__ Grade:__ Age:__

Race/ethnicity: White__ Black__ Hispanic__

Asian__ Bi-racial__ Other: _____

Please use this survey to tell us about yourself. Read each statement. CIRCLE the number that best describes how true that statement is for you or how much you agree with it. If a statement is unclear to you, ask for an explanation. If it still unclear, put a "?".

"How TRUE about you is each sentence?" Not at all **1** Not really **2** Sort of true **3** True **4** Very true **5**

	Not at all	Not really	Sort of	True	Very true
(1) I like spending time in the community where I live (at school).	1	2	3	4	5
(2) Spending time with my friends is the best part of my day.	1	2	3	4	5
(3) I can name 5 things that my friends really like about me.	1	2	3	4	5
(4) I want my parents to be proud of me.	1	2	3	4	5
(5) I have a lot of fun with my brother(s) or sister(s).	1	2	3	4	5
(6) I work hard at school.	1	2	3	4	5
(7) Many of the other students bother me.	1	2	3	4	5
(8) I care what my professors think of me.	1	2	3	4	5
(9) I will have a good life ahead of me.	1	2	3	4	5
(10) I enjoy spending time by myself reading.	1	2	3	4	5
	Not at all	Not really	Sort of	True	Very true
(11) There's nobody I like spending time with around where I live.	1	2	3	4	5
(12) I have friends I'm really close to and trust completely.	1	2	3	4	5
(13) I am happy with the kind of person I am.	1	2	3	4	5
(14) It is important that my parents trust me.	1	2	3	4	5
(15) I feel close to my brother(s) or sister(s).	1	2	3	4	5
(16) I enjoy being at school.	1	2	3	4	5
(17) I like pretty much all of the other kids in my grade.	1	2	3	4	5

How TRUE about you is each sentence?" Not at all **1** Not really **2** Sort of true **3** True **4** Very true **5**

	Not at all	Not really	Sort of	True	Very true
(18) I want to be respected by my professors.	1	2	3	4	5
(19) Doing well in school will help me get the things I want out of life.	1	2	3	4	5
(20) I love to read.	1	2	3	4	5
(21) I feel lonely where I live (like in my neighborhood or community)..	1	2	3	4	5
(22) Spending time with my friends is an important part of my life.	1	2	3	4	5
(23) I can name 3 things that others like about me.	1	2	3	4	5
(24) I enjoy spending time with the elders in my family (like my parents)	1	2	3	4	5
(25) I enjoy spending time with my brothers/sisters.	1	2	3	4	5
(26) I put as little effort into my college work as I can.	1	2	3	4	5
(27) I like working on projects with the students in my classes.	1	2	3	4	5
(28) I usually get along with my professors.	1	2	3	4	5
	Not at all	Not really	Sort of	True	Very true
(29) I do things outside of school to prepare for my future.	1	2	3	4	5
(30) I never read books in my free time.	1	2	3	4	5
(31) I spend a lot of time in my neighborhood or community.	1	2	3	4	5
(32) My friends and I talk about personal things that are important to us.	1	2	3	4	5
(33) I really like who I am.	1	2	3	4	5
(34) My parents and I argue about things a lot.	1	2	3	4	5
(35) I try to spend time with my brothers/sisters when I can.	1	2	3	4	5
(36) I work hard to make my parents proud of me.	1	2	3	4	5

How TRUE about you is each sentence?" Not at all **1** Not really **2** Sort of true **3** True **4** Very true **5**

	Not at all	Not really	Sort of	True	Very true
(37) I get along well with the other students in my classes.	1	2	3	4	5
(38) I try to get along with my professors.	1	2	3	4	5
(39) I do lots of things in school to prepare for my future.	1	2	3	4	5
(40) I often read when I have free time.	1	2	3	4	5
(41) I hang out a lot with others in my neighborhood where I live.	1	2	3	4	5
(42) I spend a lot of time with my friends outside of school.	1	2	3	4	5
(43) I have special hobbies, skills, or talents.	1	2	3	4	5
(44) I get along with the elders in my family (like my parents)	1	2	3	4	5
(45) I spend a lot of time with my brother/sister(s).	1	2	3	4	5
(46) I feel good about myself when I am at school.	1	2	3	4	5
(47) People usually think I have a lot going for me in life.	1	2	3	4	5
	Not at all	Not really	Sort of	True	Very true
(48) I always try hard to earn my professors' trust.	1	2	3	4	5
(49) Thinking about my future keeps me from getting in trouble.	1	2	3	4	5
(50) For fun I read on my own at least once a week.	1	2	3	4	5
(51) My neighborhood (or town) is boring.	1	2	3	4	5
(52) My friends and I spend a lot of time talking about things.	1	2	3	4	5
(53) Students who do well in school usually get better jobs.	1	2	3	4	5
(54) I have unique interests or skills that make me interesting.	1	2	3	4	5
(55) I am liked by my classmates.	1	2	3	4	5

How TRUE about you is each sentence?" Not at all **1** Not really **2** Sort of true **3** True **4** Very true **5**

	Not at all	Not really	Sort of	True	Very true
(56) I enjoy spending time with my father.	1	2	3	4	5
(57) I enjoy spending time with my mother.	1	2	3	4	5
(58) I like getting to know people from other cultural or racial groups.	1	2	3	4	5
(59) I get very angry when people tease me or put me down.	1	2	3	4	5
(60) I think prejudice and hatred between racial groups is a big problem.	1	2	3	4	5
(61) My religion is very important to me.	1	2	3	4	5
(62) My father and I are pretty close.	1	2	3	4	5
(63) My mother and I are pretty close.	1	2	3	4	5
(64) I get very angry when people criticize me.	1	2	3	4	5
(65) I would like to have friends from different cultural/racial backgrounds than my own.	1	2	3	4	5
(66) I attend a religious service (like church) at least once a month.	1	2	3	4	5
(67) My father cares a lot about me.	1	2	3	4	5
(68) My mother cares a lot about me.	1	2	3	4	5
(69) My father and I argue a lot.	1	2	3	4	5
(70) My mother and I argue a lot.	1	2	3	4	5
(71) I like getting to know people who are culturally different from me.	1	2	3	4	5
(72) I get pretty upset when other people are mean or rude to me.	1	2	3	4	5
(73) I am a religious or faithful person.	1	2	3	4	5
(74) I talk with my father about very personal things and problems.	1	2	3	4	5
(75) I talk with my mother about very personal things and problems.	1	2	3	4	5

🎉 You finished the MAC—thanks for doing this! 🎉

A Multicultural Assessment of Adolescent Connectedness: Testing Measurement Invariance Across Gender and Ethnicity

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Counselors, psychologists, and evaluators of intervention programs for youth increasingly view the promotion of connectedness as an important intervention outcome. When evaluating these programs, researchers frequently test whether the treatment effects differ across gender and ethnic or racial groups. Doing so necessitates the availability of culturally and gender-invariant measures. We used the Hemingway: Measure of Adolescent Connectedness to estimate the factor structure invariance and equality of means across gender and 3 racial/ethnic groups with a large sample of middle school adolescents. From a practical perspective, the 10-scale model suggested factor structure invariance across gender and racial or ethnic (i.e., African American, Caucasian, and Latina/o) groups of adolescents. However, tests for partial invariance revealed some group difference on the factor loadings and intercepts between gender and ethnic/racial groups. When testing for mean equivalence, girls reported higher connectedness to friends, siblings, school, peers, teachers, and reading but lower connectedness to their neighborhoods. Caucasians reported higher connectedness to their neighborhoods and friends but lower connectedness to siblings than African Americans and Latinos. African Americans reported the highest connectedness to self (present and future) but lowest connectedness to teachers. Latinos reported the lowest connectedness to reading, self-in-the-present, and self-in-the-future. Overall, this study reveals racial/ethnic and gender mean differences on several connectedness subscales and suggests the Hemingway subscales are, from a practical perspective, invariant across gender and ethnicity and therefore appropriate for most assessment and evaluation purposes.

Keywords: factor analysis, invariance, school connectedness, adolescence, cross-cultural

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As important as it is to reduce or eliminate problems among children and adolescents, it is just as important to help them thrive and form positive connections to the larger world. (Evans et al., 2005, p. 498)

Promoting adolescents' connectedness to school, their families, and the future has become the goal of many school-based prevention and positive youth development programs (Garringer, 2009; Grossman & Bulle, 2006; Roth & Brooks-Gunn, 2003). Yet program developers and evaluators have lacked the measures of connectedness with evidence of racial/ethnic or gender equivalence required to justify the use of these measures for statistical comparisons between these groups for the purpose of research,

evaluation, or diagnosis. To assist them, in the present study, we examine the factor structure equivalence of a 10-scale measure of adolescent connectedness and compare means across racial/ethnic groups and gender.

Estimating factor structure equivalence for readily available measures of adolescent connectedness is important because mean differences in levels of family, school, and social connectedness between adolescent boys and girls and across racial and ethnic groups are frequently reported in the literature (Bonny, Britto, Klostermann, Hornung, & Slap, 2000; Lee & Robbins, 2000; McNeely, Nonemaker, & Blum, 2002; Resnick et al., 1997; Whitlock, 2006). If we assume that the subscales of connectedness used in these studies were invariant across gender and ethnicity/race, then the reported mean differences simply indicate that one gender or ethnic/racial group reported a higher level of connectedness on one or more connectedness subscales. However, there is some evidence that the meaning (or operational definition) of family, school, and social connectedness also may differ across gender and ethnicity at the construct level (e.g., Jacobson & Rowe, 1999). In this case, the underlying construct being measured may vary considerably across groups, thereby rendering these mean comparisons invalid. Determining the validity of such comparisons requires research on the meaning of connectedness and tests of scale construct validity and measurement invariance (Barber & Schluterman, 2008).

What is connectedness? Townsend and McWhirter (2005) reviewed the counseling literature on connectedness and concluded that it reflects "when a person is actively involved with another

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person, object, group, or environment, and that involvement promotes a sense of comfort, well-being, and anxiety reduction" (p. 193). This definition is consistent with research literature on both adults and adolescents that characterizes connectedness using indicators of behaviors and affect in (e.g., "being close to people" [Resnick et al., 1997, p. 825] and "feeling a part of" [Barber & Schluterman, 2008, p. 210]) specific contexts and relationships. Yet, only in the adolescent literature has connectedness regularly been differentiated into the domains of school, familial, and social connectedness. There has been little work done to determine whether these ecological domains should be measured separately—that is, whether scales of separate ecological domains demonstrate discriminant validity. Nor has research considered whether the behavioral and affective components of adolescent connectedness manifest similarly for boys and girls and across different cultural groups.

Hemingway: Measure of Adolescent Connectedness

One measure of adolescent connectedness, the Hemingway: Measure of Adolescent Connectedness (Karcher, 2005), may prove useful to researchers, counselors, and evaluators who seek to compare mean differences in adolescent connectedness between genders and across ethnic/racial groups. First, it has utility for program evaluation, because its subscales for connectedness to school, parents, and friends reflect outcomes commonly targeted by youth development programs (Roth, Brooks-Gunn, Murray, & Foster, 1998). Second, studies using earlier versions of the Hemingway have revealed evidence of predictive validity. For example, studies reveal negative relationships between several connectedness subscales and forms of risk taking (both violence and substance use) that are commonly targeted by intervention programs (e.g., Karcher, 2002; Karcher & Finn, 2005). Third, the definition of adolescent connectedness reflected in the Hemingway subscales (as affect and action in specific relationships, contexts, and activities) is consistent with the general view in the field (Barber & Schluterman, 2008; Townsend & McWhirter, 2005).

Gender Differences

Consistent with prior research using other scales, studies using the Hemingway subscales have reported mean differences between boys and girls (with girls scoring higher than boys on most subscales; see Karcher, 2001), but they also reveal different program impacts on several domain-specific connectedness subscales across gender (Herrera, Grossman, Kauh, Feldman, & McMaken, 2007). For example, Karcher (2008) found that the effects of school-based mentoring on connectedness were different for boys and girls. Boys increased in connectedness to school, whereas girls improved primarily in connectedness to friends and peers.

Ethnic and Racial Group Invariance

Programs and related counseling services provided to ethnic minority youth often target problems or promote developmental competencies derived from research on ethnic majority youth (García Coll et al., 1996). Yet theory and research suggest that minority and majority youth may experience the key intervention processes of such programs differently. For example, one study

that used the Hemingway with African American, Caucasian, and Latino youth reported that the effect of a cross-age peer mentoring program on academic achievement was mediated by improvements in connectedness to parents (Karcher, Davis, & Powell, 2002). However, if perceptions of connectedness to parents are culturally specific, as suggested by Cooper (1999), it is unclear whether improved parental connectedness mediates program impacts similarly across these groups.

It is possible that some aspects of a construct differ across gender and cultural groups. Therefore, a measure should not include items that are more reflective of one group's experience than another's. Including such items may result in dissimilar item weighting across groups, making the comparison of these scores impossible. Given the importance of valid mean comparisons, the use of measures that are invariant across comparison groups is critical.

Factor Structure Invariance

Regardless of the method used to estimate construct scores, it is assumed that items function similarly across comparison groups and that items are invariant. When a multi-item scale is used in practice, the observed scores (e.g., scale means) provide equal weight to each item, with each item assumed to make an equal and important contribution to that construct. With factor analysis, a factor score is created on the basis of the unstandardized factor loadings and intercepts; thus, items may contribute unequally to the factor. For noninvariant scales, either the unstandardized factor loadings and/or the intercepts contribute differently to the factor score across groups (see Chen, 2008; Little, 1997; Meredith, 1993; Vandenberg & Lance, 2000). Under these conditions, the equation used to create each group's overall score differs, making mean comparisons ill-advised. Therefore, *factor loading invariance* indicates the relationships (i.e., slopes) between the subscale items and the factor are parallel across groups—that is, the unstandardized factor loadings are equal. This means that for each group, a one-unit change in the item response results in the same increase for both groups on the underlying factor. *Intercept invariance* occurs when the groups have the identical item mean when the factor score is zero (i.e., at the average latent trait score). When factors have invariant factor loadings and intercepts, the regression equations are identical, such that the regression lines completely overlap and item contributions to each factor are equal between the groups. Under these circumstances, the factor scores are created in an identical fashion and comparing means is justifiable.

These equations could differ for a number of reasons. For example, *factor loading noninvariance* could occur when (a) items are translated from one language to another but the definitions and meanings of the concepts differ between groups, (b) results differ simply because of an improper translation, (c) subjects interpret the item(s) differently for various reasons within the same culture (e.g., boys and girls within a culture), and/or (d) certain groups may avoid or use more extreme responses (Chen, 2008). *Intercept noninvariance* could occur because of (a) social desirability reasons or social norms, (b) certain groups displaying a propensity to respond more strongly to an item despite having a comparable latent trait value, and/or (c) certain groups having a different reference point when making statements about themselves (Chen, 2008).

The present study addressed the following research questions. First, does the Hemingway measure provide evidence of factorial validity? Second, is the 10-factor model invariant across different gender and racial/ethnic groups of early adolescents? Third, assuming measurement invariance, do the 10 observed means differ across the gender and racial/ethnic groups, as has been reported previously in the literature?

Method

Sample

Data were collected from 4,263 students attending the six middle schools in a Midwestern city of approximately 90,000 people. The U.S. Census data for the year 2000 reveals that 79% of the citizens of this city were Caucasian, 8% were African American, 10% were Latina/o, and 3% self-identified as "other race," and the city's median family income was \$41,900. The study data were collected by a school district that regularly uses this survey to track school climate. Nearly 90% of the 4,741 students enrolled in the six middle schools in this city participated. The data were collected by the director of the Office of K–12 Instruction in February of 2003 using a university-approved passive consent approach, which explained that children could choose not to participate, that the data would be anonymous, and that the data would subsequently be provided to us for the purpose of conducting these data analyses.

Of the 4,263 youth sampled, singletons (subjects without siblings) were excluded because of their appropriately missing data on Connectedness to Siblings subscale items.¹ With no responses to Connectedness to Siblings subscale items, those youth would have been dropped from the invariance tests, and we opted not to impute or estimate this data. Unfortunately, we did not explicitly ask respondents whether they had any siblings. To infer singleton status, we took a liberal approach and designated singletons as anyone who was missing two or more Connectedness to Siblings subscale items ($n = 294$; 7.5%). The responses of these individuals were then removed from the data—that is, we did not attempt to impute what the singletons' sibling connectedness might have been had they not been singletons. Although we have conducted tests of invariance between those designated as singletons and siblings, we consider these analyses more dubious given the uncertain nature of each individual's actual sibling status. Thus, these results are available in the online supplement but are not reported here. In addition, the responses of another 336 subjects were removed because of missing gender and race/ethnicity data.

Table 1 provides the usable sample demographics by grade, gender, and ethnicity for the remaining 3,633 subjects of interest. Tests of gender invariance used this entire sample, whereas invariance tests across ethnicity/race included only African American, Caucasian, or Latino youth. Therefore, 305 subjects were excluded because the sample sizes for their ethnic/racial (i.e., Asian, biracial, and other) groups were inadequate for the analyses, which results in a total useable sample size of 3,328 for these analyses.

Of the 3,633 subjects of interest, the majority lived with both parents ($n = 2,225$, 61.2%); the remainder of the sample lived with their mother only ($n = 910$, 25.0%), with their father only ($n = 171$, 4.7%), or in an alternative living situation (e.g., foster care, grandparents; $n = 184$, 5.1%). The remaining subjects ($n = 143$,

3.9%) did not report their living arrangements. The sample appears comparable to the Census 2000 population data for this city.

Missing Data

Missing data at the item level were treated using multiple imputations (MI) via the expected maximization algorithm and the Markov chain Monte Carlo algorithm within LISREL (see du Toit & du Toit, 2001, pp. 387–388). This procedure essentially used random draws or data sets from a multivariate normal probability distribution via Markov chains, with the new parameter estimates recalculated after every draw using the expected maximization algorithm. After an initial burn-in period, the final solution is a data set that represents the average simulated values over the 500 draws. Default values were used, with the exception of increasing the number of draws from 200 to 500 to ensure stable and accurate results.

MI, rather than full information maximum likelihood (FIML) estimation, was used because commonly reported fit indices (e.g., normed fit index, nonnormed fit index, comparative fit index [CFI], goodness-of-fit index) are unavailable when executing FIML given that the chi-square test statistic for the independence (or null) model is unavailable in closed form within LISREL. However, to evaluate the consistency between MI and FIML estimates, we compared MI parameter estimates (i.e., factor loadings, interfactor correlations, available model fit statistics, etc.) with the available FIML estimates. These estimates were nearly identical across both missing data treatment methods. This might be anticipated given that only 2.34% of total observations were missing. Given the percentage of missing data, the model fit statistics should be relatively unbiased (Davey, Savla, & Luo, 2005).

Measures

The Hemingway: Measure of Adolescent Connectedness (final version, Karcher, 2005; see Appendix) self-report survey consists of 57 items designed to measure adolescents' degree of caring for and involvement in specific relationships, contexts, and activities. There are 10 four- to six-item subscales (see Figure 1). Eight of the 10 subscales include a reverse-coded item. All use a response range from 1 = *not at all true* to 5 = *very true*. Once the negatively worded item responses (Items 2, 7, 13, 18, 26, 30, 34, 45, and 51 in the Appendix) are reverse coded, raw scores or factor scores can be created by taking the average of the items used to measure the 10 subscales: Connectedness to Neighborhood, Connectedness to Friends, Connectedness to Self-in-the-Present, Connectedness to Parents, Connectedness to Siblings, Connectedness to School, Connectedness to Peers, Connectedness to Teachers,

¹ Although missing singleton data are arguably neither missing completely at random nor missing at random (see Rubin, 1976), one could view nonresponse by singletons on the Connectedness to Siblings items as appropriately missing (Marshall et al., 2001), such that if singletons had siblings they would respond in a similar fashion as subjects with siblings. It is because some readers may find this conceptually disconcerting that we omitted all singletons from the analyses reported here. However, tests of invariance between singletons and subjects with siblings are available in the online supplement.

Table 1
Observed Frequencies of Participants by Grade, Gender, and Ethnic/Racial Group

Grade and sex	Caucasian	African American	Latina/o	Asian	Biracial	Other
6th						
Boys	444	84	65	8	27	14
Girls	378	66	60	5	19	13
7th						
Boys	420	58	65	15	28	23
Girls	447	63	59	12	47	9
8th						
Boys	437	55	77	6	22	9
Girls	412	44	57	10	18	12
Missing grade data						
Boys	17	6	2	1	1	2
Girls	9	2	1	1	2	1
Total ethnicity	2,564	378	386	58	164	83

Note. The total sample size used for the gender invariance analyses was 3,633, but for the racial/ethnic group invariance analyses the sample was 3,328 because these analyses excluded Asians, biracial, and other subjects as a result of inadequate sample sizes.

Connectedness to Self-in-the-Future (Item 55 is excluded due to prior evidence of poor construct and discriminant validity; see Karcher, 2001), and Connectedness to Reading.

Initially, this survey instrument was developed by asking adolescents in two ethnically diverse focus groups to explain what they thought it meant to be “connected” (Karcher, 2001). The proportion of African American and Latino youth in both focus groups was equal to or greater than their representation in the present study, as both were conducted in more ethnically diverse locations (one was in Texas, the other Massachusetts). The focus groups resulted in the identification of multiple domains of connectedness, and youth helped generate subscale items that reflect caring for and involvement in these domains. For example, the Connectedness to School subscale focuses on the importance youth place on school and how actively they try to be successful in school. The Connectedness to Teachers subscale assesses effort made to get along with teachers and concerns about earning teachers’ respect and trust. The Connectedness to Peers subscale assesses feelings about peers and about working with peers. The two self subscales assess present and future-oriented self-esteem. The Connectedness to Self-in-the-Present subscale assesses feelings about current relationships, continuity in behavior across contexts, and an awareness of skills and interests that make them liked by others. The Connectedness to Self-in-the-Future subscale asks about behaviors and qualities that will help them in the future.

Studies using prior versions of the subscales have demonstrated a distinct factor structure, evidence of convergent and discriminant validity, and good one-month test–retest reliability (Karcher, 2001). Karcher (2001) reported a series of five studies that describe construct, item, and subscale development. These studies used the fourth version of the measure, which included eight items that are worded differently than they are in this final version. In those studies, Karcher used exploratory factor analyses and confirmatory factor analyses (CFA) across separate samples to assess factorial validity evidence and compare mean differences across several groups (i.e., genders, teens vs. preteens, delinquent vs. nondelinquent youth). These studies reported the strongest evidence of convergent validity with measures of family connected-

ness, school connectedness, self-esteem, and future orientation. One-month test–retest reliabilities ranged from $r = .68$ (Connectedness to Self-in-the-Future) to $r = .91$ (Connectedness to Siblings). Cronbach’s alpha ranged from weak ($\alpha = .60$ and $.68$ for Connectedness to Peers and Connectedness to Self-in-the-Future, respectively) to strong ($\alpha = .91$ and $.94$ for Connectedness to Reading and Connectedness to Siblings, respectively).

Statistical Analysis Procedures

Invariance analyses. To test factor structure invariance, this study assessed the following model components: (a) factor loadings, (b) intercepts, (c) factor loading residuals, and (d) the variance–covariance matrix of the latent trait factors. To date, a mandatory sequential order to test for first-order factor structure invariance does not exist (see Ployhart & Oswald, 2004; Vandenberg & Lance, 2000). Agreement does exist with regard to testing latent mean equivalence across different groups. Tests of latent or observed score mean equivalence should only be conducted if the unit of measurement (i.e., unstandardized factor loadings) and scale origin (i.e., intercepts) are invariant between groups (Little, 1997; Ployhart & Oswald, 2004).

Testing for factorial invariance. Our tests of first-order factor model invariance started with an examination of model fit for each group (e.g., boys and girls) separately. If adequate model fit was obtained for each group, a test of configural invariance (weighted combination of both samples) was acquired to provide the baseline model to subsequently compare the more restrictive invariance models. The next two models, which test for unstandardized factor loading and intercept invariance, determined whether the preconditions were met to allow for mean comparisons. These invariance tests were critical to assess whether the latent trait scores (i.e., factor score estimates) were created in an identical fashion (see Jöreskog & Sörbom, 1996, pp. 171–173). The final two analyses evaluated whether the measured variable’s (i.e., item’s) residuals and the factor’s variance–covariance matrix were equal. These comparisons are considered optional and of less theoretical interest, and they are not required to compare means.

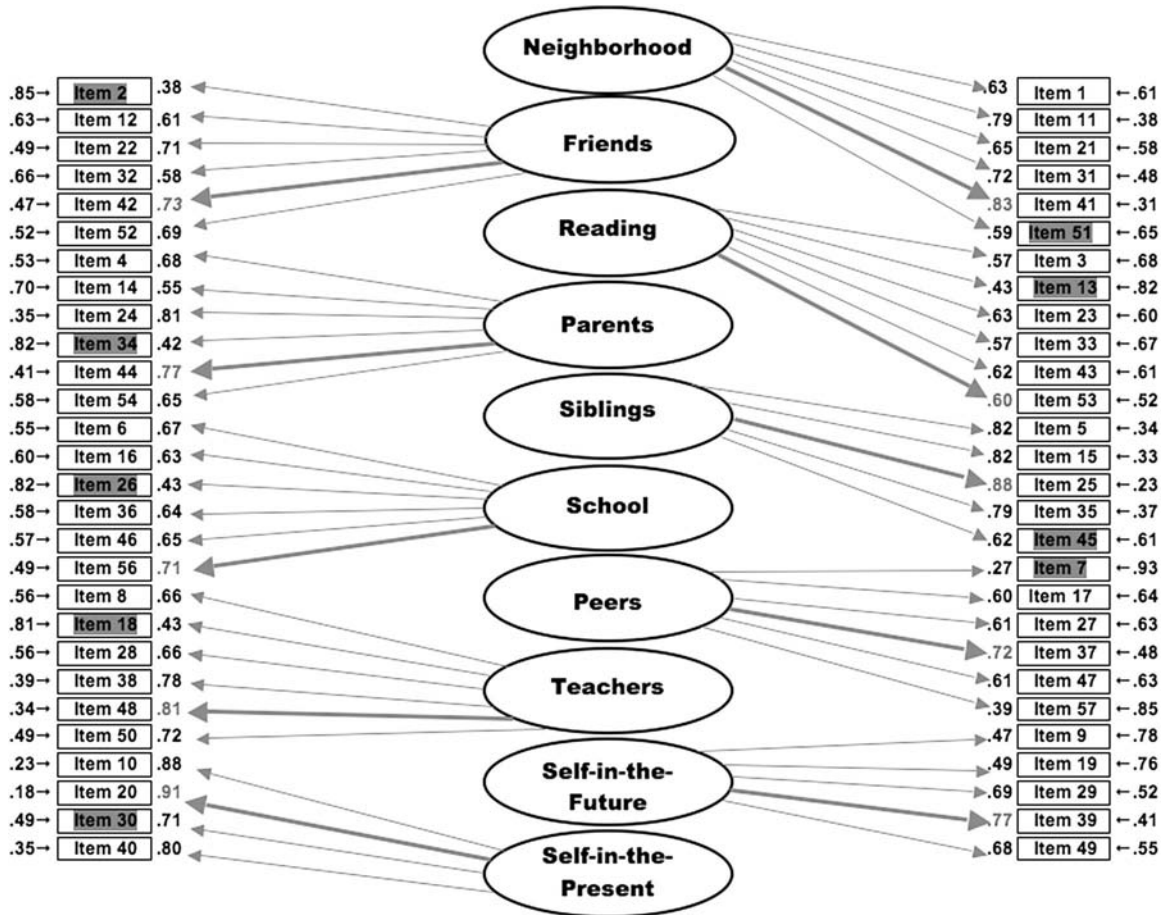


Figure 1. Displays parameter estimates for the completely standardized item factor loadings and residuals for the 10 adolescent connectedness subscales. These parameter estimates complement the interfactor correlations (ϕ s) in Table 2. Grayed items are reverse-scored, negatively worded items. Grayed factor loadings indicate parameters fixed to 1 for scale identification.

These models simply test whether the other measurement model components are equal. Note that invariance was tested cumulatively, meaning that the higher order (e.g., intercept) invariance was only tested if the lower order (e.g., unstandardized factor loadings) invariance was met.

Model estimation. Data analysis was conducted with LISREL 8.80 (Jöreskog & Sörbom, 1996) using the covariance matrix and a maximum likelihood estimation procedure. When evaluating the models, we fixed several parameter estimates (i.e., reference indicators) at 1.0 (denoted in figures by bolded arrows and grayed coefficients) to identify the model and set the metric of the factor. The reference indicator item was not selected arbitrarily as the selection of these items can have a considerable influence on the invariance results (French & Finch, 2008). Instead, numerous invariance models were tested to select the item that was most invariant across gender and ethnic/race groups. Each estimated (i.e., freed) standardized factor loading and corresponding residual is provided in Figure 1; the other factor loadings and residuals were fixed at zero (i.e., not estimated). All interfactor correlations (ϕ) were also estimated (see Table 2).

Model identification. To help ensure model identification, we made sure the following conditions were met: (a) A single un-

standardized factor loading per factor was set at 1.0, (b) at least three indicators (i.e., items) existed per factor with uncorrelated error terms, and (c) no error terms were correlated. The t-rule was also applied to ensure that each model resulted in an overidentified model that could be estimated (Bollen, 1989). Thus, there were always more known than unknown pieces of information.

Overall model fit criteria. The statistics used to evaluate model fit for each gender and ethnicity/race sample were the minimum fit function chi-square, CFI, root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR). Description of these model fit statistics can be obtained from Hoyle (1995) and Hu and Bentler (1999). Hu and Bentler described CFI statistics greater than .90 as an “adequate” fit and values greater than .95 (which are preferable to minimize Type I and Type II errors) as a “good” fit. They denoted fit indexes for RMSEA and SRMR values less than .06 and .08, respectively, as “good” and values between .08 and .10 as “mediocre.”

Invariance model fit criteria. The problems associated with evaluating model fit when testing for model invariance are well documented (see Chen, Sousa, & West, 2005). Although a chi-square difference test (i.e., likelihood ratio test) allows a statistical

Table 2
Interfactor Correlations (ϕ) Using the Complete Sibling Sample ($n = 3,633$)

Connectedness subscale	1	2	3	4	5	6	7	8	9	10
1. Neighborhood	.85									
2. Friends	.34	.78								
3. Self-in-the-Present	.36	.47	.76							
4. Parents	.30	.21	.54	.80						
5. Siblings	.26	.20	.38	.61	.89					
6. School	.24	.28	.61	.63	.39	.79				
7. Peers	.43	.48	.66	.51	.39	.67	.68			
8. Teachers	.25	.30	.50	.60	.39	.85	.61	.82		
9. Self-in-the-Future	.31	.31	.71	.58	.43	.73	.56	.68	.75	
10. Reading	.06	.12	.22	.24	.20	.44	.19	.37	.36	.89

Note. These interfactor correlations (off diagonal) complement the standardized factor loadings in Figure 1, with the internal consistency estimates provided on the diagonal.

comparison between nested models, this test presents several statistical problems (Chen, 2007; Marsh & Hocevar, 1985): (a) The chi-square statistic is sensitive to departures from multivariate normality and (b) with complex models and/or large samples, the chi-square (or $\Delta\chi^2$) statistic is nearly always large and statistically significant. For these reasons, the results were interpreted from *practical* (ΔCFI , $\Delta RMSEA$, and $\Delta SRMR$) and *statistical* ($\Delta\chi^2$) model fit perspectives. Three practical model fit statistics (CFI, RMSEA, and SRMR) less sensitive to model complexity and sample size were emphasized. Following Chen's (2007) recommendations based on simulation research, we used the following criteria to determine acceptable model fit: $\Delta CFI \leq .01$, $\Delta RMSEA \leq .015$, and $\Delta SRMR \leq .03$ for tests of factor loading invariance, and $\Delta CFI \leq .01$, $\Delta RMSEA \leq .015$, and $\Delta SRMR \leq .01$ for tests of intercept invariance and residual invariance.

Results

Factorial Validity

Prior to assessing the invariance models, we evaluated evidence of the measure's factorial validity using CFA for the entire sample. The model estimation procedures carried out were identical to the invariance tests, with the exception that the completely standardized solutions, rather than unstandardized solutions, were evaluated. The completely standardized parameter estimates for the entire sample (without singletons, $n = 3,633$) are provided in

Figure 1, which displayed an overall good model fit, $\chi^2(1439) = 12,555.58$, $p < .0001$, CFI = .964, RMSEA = .051, SRMR = .048. The model fit and modification indices, which indicate minimal cross-loadings, provide strong evidence of factorial validity, as all the items had relatively large estimated standardized factor loadings on their corresponding factors. Except for Item 7, all the standardized factor loadings were greater than .30. One trend worth noting is that reverse-scored items often had smaller estimated standardized factor loadings than did other items. The interfactor correlations are provided in Table 2 to complement the estimated standardized factor loadings in Figure 1. Internal consistency estimates for all students also are reported in the diagonals of Table 2. Gender-specific and ethnic subgroup internal consistency estimates varied slightly between the groups; these results are available in the online supplement.

Tests for Gender Invariance Based on the Practical Fit Indices

Prior to testing for measurement invariance, we estimated the factor models for girls and boys separately. Results revealed a good model fit for both genders, with relatively equal model fit statistics (see Table 3). The configural invariance model also provided a good model fit based on the RMSEA, SRMR, and CFI. The next two models tested whether the unstandardized factor loadings and intercepts were invariant across gender. Model fit results based on the practical indices revealed the $\Delta RMSEA$,

Table 3
Model Fit Statistics Across Gender

Model	χ^2	df	$\Delta\chi^2$	Δdf	RMSEA	$\Delta RMSEA$	SRMR	$\Delta SRMR$	CFI	ΔCFI
Boys	7,195.20	1439			.050		.050		.963	
Girls	7,131.94	1439			.052		.051		.962	
Configural	14,327.13	2878			.051		.051		.963	
Factor loadings	14,554.85	2924	227.72	46	.051	.000	.051	.000	.962	-.001
Item intercepts	15,945.82	2980	1,390.97	56	.054	.002	.051	.001	.958	-.004
Item residuals	16,676.92	3036	731.10	56	.054	.001	.051	.000	.955	-.002
Variance/covariance	16,805.40	3091	128.48	55	.054	.000	.053	.002	.955	.000

Note. Sample sizes for boys, girls, and combined were 1,886, 1,747, and 3,633, respectively. All chi-square and change in chi-square values were statistically significant at $\alpha = .001$. RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; CFI = comparative fit index.

Δ SRMR, and Δ CFI were always less than .01, thus suggesting that the factor score estimates were created similarly across genders (see Table 3). More specifically, this implies that the linear equations used to create factor score estimates were nearly equivalent for girls and boys. Tests for gender invariance of the item residuals (θ_{δ}) and the variance–covariance matrix (ϕ) of the latent variables revealed that Δ RMSEA, Δ SRMR, and Δ CFI were consistently small, suggesting that item residuals and the variance–covariance matrix were largely invariant. In short, the practical fit indices, which adjust for model complexity and sample size, suggest factorial invariance was obtained, and therefore gender mean differences can be examined.

Despite the indication of factor structure invariance from a practical standpoint, the statistical model fit index (i.e., $\Delta\chi^2$) was relatively large for some models, suggesting some differences exist. Pursuant to Byrne and Stewart (2006), we conducted additional item-level analyses to better understand the statistically significant change in chi-square and identify whether some items were more equivalent indicators of connectedness across gender than others.

Tests for Gender Invariance From a Traditional (or Statistical) Perspective: Item-Level Tests

To ensure our data met the conditions necessary to compare the latent variables (ξ), we conducted post hoc analyses on the unstandardized factor loadings and intercepts to ascertain the degree of noninvariance from a statistical perspective. As shown in Table 4, several item parameters were statistically significant (i.e., noninvariant) even after applying a Bonferroni adjustment to control for Type I error.

Half of the Connectedness to Friends, Connectedness to Parents, Connectedness to School, and Connectedness to Self-in-the-Present subscale items ($n_i = 3$) were not invariant across gender, typically because of statistically noninvariant intercepts. When viewing Table 4, it may be useful to recall that items on the same factor end with the same digit. For example, items ending in 4, 6, 8, and 10 correspond to the Connectedness to Parents, Connectedness to School, Connectedness to Teachers, and Connectedness to Self-in-the-Present subscales, respectively. Most of these differences appeared relatively small on the basis of the Diff estimates and change in chi-square (see Table 4). Steenkamp and Baumgartner (1998, p. 81) suggested partial invariance tests are only used when modification indices are highly significant (both in absolute magnitude and in comparison with the other items) and the expected parameter changes are substantial. They also encourage researchers to focus on the relative weight between change in chi-square statistics; thus, one could argue that only the intercept differences on Items 32 and 52 are of considerable concern given their change in chi-square values compared with the other change in chi-square values. Unfortunately, no standards exist for estimating the “practical significance” for a specific magnitude of difference in item intercepts and factor loadings given that unstandardized coefficients are being compared. For this reason, we later compare the mean difference effect sizes for the full and partial invariance models to assess the overall impact of these noninvariant items.

Regarding differences in factor loadings, only five of 56 (less than 10%) unstandardized factor loadings were noninvariant be-

Table 4
Noninvariant Items Based on the $\Delta\chi^2$ Test Across Gender

Item	Unstandardized estimated values			$\Delta\chi^2$
	Boys	Girls	Diff	
	Factor loading			
14	0.65	0.44	0.21	37.94
12	0.88	0.69	0.19	23.81
34	0.53	0.74	−0.21	21.07
18	0.55	0.72	−0.17	16.99
26	0.60	0.94	−0.34	16.31
	Intercept			
32	3.10	3.95	−0.85	156.14
52	3.54	4.20	−0.66	124.81
33	4.03	3.84	0.19	58.63
14	4.46	4.57	−0.11	50.67
21	3.54	3.63	−0.08	42.11
46	3.31	3.41	−0.11	39.91
43	4.19	4.11	0.08	36.97
54	4.46	4.54	−0.08	33.62
12	3.99	4.37	−0.38	31.95
34	3.10	2.97	0.13	27.87
19	4.41	4.55	−0.14	25.10
31	3.42	3.13	0.29	22.78
18	3.34	3.52	−0.18	17.46
53	2.49	3.06	−0.57	16.88
16	2.83	3.25	−0.42	16.43
27	3.63	3.66	−0.04	14.49
26	2.50	2.77	−0.27	13.96
49	3.72	3.84	−0.12	13.10

Note. Diff represents the difference between unstandardized parameter estimates (i.e., factor loadings or intercepts). All parameter estimates were significantly different from each other after a Bonferroni adjustment ($\alpha_{BA} = .05/102 = .00049$) based on the change in chi-square.

tween boys and girls. This suggests that, in general, most relationships between items and the overall factor scores do not differ between genders—that is, the factor loadings do not differ for boys and girls. In regard to the five differences, boys displayed larger estimated factor loadings on Items 12 and 14, where both items dealt with trust related to friends (Item 12) or parents (Item 14). Boys also had significantly lower intercepts than girls on these items. As seen in Figure 2, although boys’ connectedness to friends (Item 12) increased at a greater rate on this trust-specific item, meaning the unstandardized factor loading was larger, they also had a slightly lower intercept (i.e., average item response when the factor score is zero). Collectively, these results suggest that trust may function differently for boys and girls: Boys report lower levels of trust when their connectedness to friends and parents is low, but the gap reduced as their connectedness increased. Had the item been invariant, the two lines would have overlapped because they would have had the same slope (i.e., equal factor loadings) and intercept. Instead, the greater slope of the regression line for boys seen in Figure 2 represents a stronger relation between the observed variable and the underlying latent construct for boys than for girls.

The three other noninvariant factor loadings were reverse-scored items (Items 34, 18, and 26), with girls having larger unstandardized factor loadings than boys. This implies that for these items, every increase in item response increased the factor

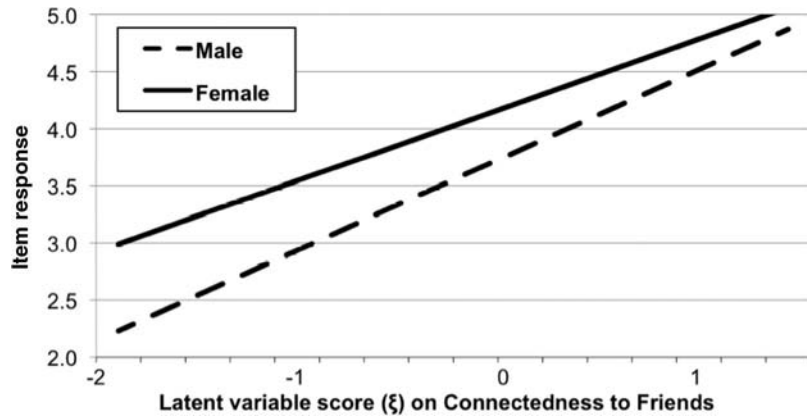


Figure 2. Illustration of item slope and intercept noninvariance. Graph of predicted scores on Item 12 (“I have friends I’m really close to and trust completely”) as a function of scores on the Connectedness to Friends factor. This illustrates the dual noninvariance on this item, which has a significantly different slope (factor loading) and intercept (predicted item score when the factor score is 0) for boys and girls at the same overall levels of connectedness to friends (ξ).

score at a greater rate for girls than for boys. These same items also had significantly different intercepts, with girls having higher intercepts on Items 18 and 26 and boys displaying higher intercepts on Item 34. The girls’ higher intercepts on Items 18 and 26 meant that at the factor score mean (i.e., factor score equal to zero), girls had higher item responses than boys.

In terms of item content, two other items are worth discussing. The intercepts for Items 32 and 52 on the Connectedness to Friends factor displayed a much larger change in chi-square and Diff estimate than did the other noninvariant intercepts in Table 4. Both items measure the importance of talking with friends as indicators of connectedness to friends. On average, girls talked more with their friends than did boys, despite having identical levels of connectedness to friends (and regardless of their level of connectedness to friends; i.e., intercepts were higher but the slopes were parallel).

Tests for Ethnicity Invariance Based on the Practical Fit Indices

Ethnicity analyses revealed that the model fit very well for the Caucasian group. Although the model fit statistics were not as

good for the African American and Latina/o groups (see Table 5), the practical fit indices met the standards for adequate model fit. Given this, the configural model was evaluated and demonstrated a good baseline model fit. Subsequent analysis of the unstandardized factor loading and intercept invariance models revealed that the model fit did not differ between the three ethnic/racial groups on the basis of the Δ RMSEA, Δ SRMR, and Δ CFI, thereby justifying a comparison of means. However, once again, the change in chi-square was statistically significant for both factor loading and intercept invariance models, which suggests that in the population differences probably exist; therefore, item analyses were conducted.

Tests for Ethnicity Invariance From a Traditional (or Statistical) Perspective: Item-Level Tests

Tests of individual item differences from a statistical standpoint revealed several differences after we controlled for Type I error using a Bonferroni adjustment. Similar to the gender comparisons, most differences occurred at the intercept level (see Table 6). The only ethnic group differences in factor loadings were on reverse-scored items (i.e., Items 34, 18, and 07).

Table 5
Model Fit Statistics Across the Different Ethnic/Racial Groups

Model	χ^2	df	$\Delta\chi^2$	Δ df	RMSEA	Δ RMSEA	SRMR	Δ SRMR	CFI	Δ CFI
Caucasian	9,619.10	1439			.052		.051		.966	
African American	2,876.43	1439			.052		.060		.941	
Latina/o	2,884.47	1439			.053		.062		.925	
Configural	15,380.00	4317			.052		.062		.961	
Factor loadings	15,627.25	4409	247.25	92	.052	.000	.064	.003	.961	-.001
Item intercepts	16,589.82	4521	962.58	112	.053	.001	.064	.000	.959	-.001
Item residuals	18,120.36	4633	1530.53	112	.059	.006	.066	.002	.954	-.005
Variance/covariance	18,401.74	4743	281.38	110	.058	.000	.098	.032	.954	-.001

Note. Sample sizes for Caucasians, African Americans, Latina/os, and combined were 2,564, 378, 386, and 3,328, respectively. All chi-square and change in chi-square values were statistically significant at $\alpha = .001$. RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; CFI = comparative fit index.

Table 6
Noninvariant Items Based on the $\Delta\chi^2$ Test Across the Ethnic Groups

Item	Unstandardized estimated values			Diff	$\Delta\chi^2$
	Caucasian	African American	Latino		
	Factor loading				
34	0.76	0.24		0.52	28.39
18		0.37	0.65	-0.28	25.07
07		0.24	0.46	-0.22	15.06
	Intercept				
06	3.90		3.63	0.27	48.53
22	4.05	3.54		0.51	37.52
18	3.50	2.97		0.53	37.44
06	3.90		3.63	0.27	35.59
07	3.42	3.31		0.11	29.74
12	4.27	3.89		0.38	29.43
01	3.57	3.12		0.45	29.28
19	4.51	4.36		0.15	25.47
17	3.04		3.29	-0.26	24.33
49	3.73	4.14		-0.41	24.09
42	4.07	3.81		0.26	23.76
19		4.36	4.46	-0.10	22.29
26	2.60		2.89	-0.29	21.87
18		2.97	3.48	-0.51	20.52
36	3.75	3.53		0.22	19.88
32	3.50		3.54	-0.05	18.56
57	3.46	3.11		0.35	17.98
57	3.46		3.17	0.29	17.23
37	3.71	3.54		0.17	16.44
33	3.90	4.25		-0.35	16.25
34	3.11	2.82		0.29	15.96
33	3.90		4.02	-0.12	15.19
45	3.75	3.72		0.02	14.24
29	3.48	3.78		-0.29	14.21
39	3.41	3.81		-0.40	14.14

Note. Diff represents the difference between unstandardized parameter estimates (i.e., factor loadings or intercepts). All parameter estimates were significantly different from each other after a Bonferroni adjustment (BA; $\alpha_{BA} = .05/204 = .00025$) based on the change in chi-square.

Evaluating the item intercepts suggested that most (16 of 25) of the group differences emerged between Caucasian and African American subjects, with many of these differences on the Connectedness to Peers (3 of 16) and Connectedness to Self-in-the-Future (3 of 16) subscales. Fewer differences were obtained between Caucasians and Latinos (7 of 25) or between African Americans and Latinos (2 of 25). Other than the noninvariant unstandardized factor loadings on the three negatively worded items, the intercept differences between Caucasians and African Americans were not accompanied by unstandardized factor loading differences. That is, these item differences remained constant across levels of connectedness for a given factor.

Tests of Mean Differences Across Gender and Ethnicity

On the basis of the practical model fit indices, the conditions were met to allow for accurate mean comparisons across gender and ethnic/racial groups using the full invariance model. This is

important because when observed scores (average item responses within a subscale) are compared across groups, the implicit assumptions are that full measurement invariance is met and the factor structure possesses tau equivalence (i.e., factor loadings measure the factor with the same degree of precision). Although some would suggest that we should report and discuss latent factor means, there is not a consensus on this issue. To facilitate the interpretation of group comparisons and to aid in the understanding of scale means by future subscale users (particularly those whose sample sizes do not support the comparison of latent means), we report (see Table 7) and discuss observed group mean differences across the 10 factors. The factor mean difference scores for the full and partial invariance models are provided in Table 7. Effect size interpretations are based on standards suggested by Cohen (1988), which are as follows: small ($|d| = 0.20$), medium ($|d| = 0.50$), and large ($|d| = 0.80$). Absolute z values greater than 3.30 ($p < .001$) were considered statistically significant for these analyses.² The mean differences (M_{Diff}) always favored the reference group, which is the first group listed in the table. Therefore, the mean difference of 0.09 between boys and girls on the Connectedness to Neighborhood factor indicates the mean score was 0.09 units higher for boys than for girls.

Of the 10 comparisons, only three observed score mean differences were not statistically different between boys and girls: Connectedness to Parents, Connectedness to Self-in-the-Present, and Connectedness to Self-in-the-Future. On all but the Connectedness to Neighborhood subscale, girls scored significantly higher than did boys. Most differences were, for practical purposes, relatively small according to Cohen's (1988) standards. Only the differences on the Connectedness to Friends and Connectedness to Reading subscales, favoring girls, reflected a medium effect size.

The ethnic group comparisons of observed score means revealed that Caucasians and African Americans differed on six of 10 means, and Caucasians and Latino/as differed on six of 10 means (see Table 7). Caucasians scored higher than African Americans on means for Connectedness to Neighborhood, Connectedness to Friends, and Connectedness to Teachers, whereas African Americans scored higher than Caucasians on the Connectedness to Self-in-the-Present, Connectedness to Self-in-the-Future, and Connectedness to Siblings subscales. However, the differences between Caucasians and African Americans on the Connectedness to Friends and Connectedness to Self-in-the-Future subscales were not found to be statistically significant with the partial invariance models, $z = -0.38, p > .05$, and $z = -1.22, p > .05$, respectively, which makes sense given the number of noninvariant Connectedness to Friends ($n_i = 4$) and Connectedness to Self-in-the-Future ($n_i = 5$) items.

Caucasians were higher than Latino/as on Connectedness to Neighborhood, Connectedness to Friends, Connectedness to Self-in-the-Present, Connectedness to Self-in-the-Future, and Connectedness to Reading subscales, but Latino/as were higher on the Connectedness to Siblings subscale. African Americans and Latino/as differed on the Connectedness to Self-in-the-Present,

² This study compared latent variable means following the procedure of Byrne (1998, pp. 303–325). Therefore, the limitation of using the change in chi-square to statistically compare latent means with complex models was not encountered (see Fan & Sivo, 2009).

Table 7
Observed Mean Differences Between Gender and Ethnic/Racial Across Groups of Subjects With Siblings

Statistic	Connectedness subscale									
	Neighborhood	Friends	Self-in-the-Present	Parents	Siblings	School	Peers	Teachers	Self-in-the-Future	Reading
	Boys vs. girls									
M_{Diff}	0.09	-0.41	-0.03	0.04	-0.13	-0.27	-0.13	-0.28	-0.05	-0.54
t	2.55 ^a	-17.33 ^a	-1.20	1.68	-3.55 ^b	-10.24 ^b	-5.47 ^b	-9.35 ^b	-1.92	-13.06 ^a
$d_{\text{total score}}$	0.09	-0.60	-0.04	0.06	-0.12	-0.36	-0.19	-0.32	-0.07	-0.45
d_{full}	0.13 ^a	-0.53^b	-0.04	0.05	-0.11 ^b	-0.33 ^b	-0.18 ^b	-0.31 ^b	-0.05	-0.43 ^b
d_{partial}	0.12 ^a	-0.26^b	-0.18^a	0.07	-0.11 ^b	-0.29 ^b	-0.22 ^b	-0.29 ^b	0.01	-0.43 ^b
	Caucasian vs. African American									
M_{Diff}	0.26	0.18	-0.18	0.00	-0.28	-0.01	0.07	0.17	-0.21	0.00
t	4.65 ^b	4.74 ^b	-4.32 ^b	-0.08	-4.97 ^b	-0.20	1.72	3.59 ^b	-4.79 ^b	-0.05
$d_{\text{total score}}$	0.17	0.17	-0.16	0.00	-0.18	-0.01	0.06	0.13	-0.18	0.00
d_{full}	0.16 ^b	0.18^b	-0.18 ^b	-0.05	-0.21 ^b	0.00	0.02	0.09 ^a	-0.23^b	-0.01
d_{partial}	0.13 ^b	-0.01	-0.12 ^a	-0.06	-0.23 ^b	-0.04	-0.05	0.07 ^a	-0.05	-0.01
	Caucasian vs. Latina/o									
M_{Diff}	0.36	0.16	0.09	-0.04	-0.23	0.02	-0.05	0.01	0.09	0.21
t	6.68 ^b	4.07 ^b	2.12 ^a	-0.94	-4.16 ^b	0.45	-1.20	0.29	2.03 ^a	3.09 ^a
$d_{\text{total score}}$	0.25	0.15	0.08	-0.03	-0.15	0.02	-0.04	0.01	0.07	0.11
d_{full}	0.26	0.16 ^b	0.08 ^a	-0.07	-0.17 ^b	0.04	-0.05	0.01	0.08 ^a	0.14 ^b
d_{partial}	0.27	0.18 ^b	0.13 ^b	-0.06	-0.17 ^b	-0.04	-0.07	0.02	0.08 ^a	0.11 ^a
	African American vs. Latina/o									
M_{Diff}	0.11	-0.03	0.27	-0.04	0.05	0.03	-0.11	-0.16	0.29	0.21
t	1.52	-0.50	5.33 ^b	-0.70	0.72	0.53	-2.33 ^a	-2.72 ^a	5.49 ^b	2.69 ^a
$d_{\text{total score}}$	0.11	-0.04	0.39	-0.05	0.05	0.04	-0.17	-0.20	0.40	0.19
d_{full}	0.13	-0.05	0.39 ^b	-0.01	0.09	0.09	-0.13	-0.13	0.44 ^b	0.21 ^a
d_{partial}	0.10	-0.07	0.36 ^b	-0.01	0.09	0.07	-0.09	-0.14	0.38 ^b	0.18 ^a

Note. The degree of freedom for the Boys vs. Girls, Caucasian vs. African American, Caucasian vs. Latina/o, and African American vs. Latina/o were 3326, 2940, 2948, and 762, respectively. The first group listed served as the reference group: boys, Caucasians, Caucasians, and African Americans, respectively. Bolded effect sizes had $\Delta d > 1.101$ between the full and partial invariance models.

^a $\alpha = .05$. ^b $\alpha = .001$.

Connectedness to Self-in-the-Future, Connectedness to Reading, Connectedness to Peers, and Connectedness to Teachers subscales, with African Americans scoring higher on the Connectedness to Self-in-the-Present, Connectedness to Self-in-the-Future, and Connectedness to Reading subscales. It is important to note that no differences emerged when using the factor scores with the full or partial invariance models on the Connectedness to Peers and Connectedness to Teachers subscales, despite having several non-invariant items on these subscales.

Practically speaking (on the basis of Cohen's d), differences between the three ethnic groups were relatively small. The largest effect sizes were between African Americans and Latino/as on the Connectedness to Self-in-the-Present and Connectedness to Self-in-the-Future subscales, with effect sizes of 0.39 and 0.40, respectively.

Power Considerations

From a statistical perspective, it is worth recognizing that the power to detect very small differences between African Americans and Latinos was considerably less than with Caucasians. That is, more statistically significant differences between these groups may have emerged if the overall sample size was comparable to those used in the comparisons with Caucasians. Assuming a sample size

approximate to that used with the Caucasian analyses ($n = 2,946$) and the conventional power level (i.e., .80) at $\alpha = .05$, effect sizes of .1033 would be needed to reject the null hypothesis of no group differences 80% of the time. Therefore, only the total score difference on Connectedness to Neighborhood would likely become statistically significant between African Americans and Latinos at $\alpha = .05$. Regardless, the effect sizes would remain small.

Discussion

The primary function of this study was to assess measurement invariance across gender and racial/ethnic groups for a measure of adolescent connectedness, thereby allowing the assessment of group differences with greater confidence. A second goal was to estimate mean differences on the 10 connectedness subscales. Results revealed that from a practical standpoint, measurement invariance was upheld. This implies that subjects with equivalent latent construct scores respond similarly to items across ethnic/racial groups and gender, which satisfies the statistical assumption when comparing latent or observed means (Byrne, 1998). Given that invariance was met from a practical perspective, a discussion of mean differences is presented first. Later, we discuss the implications of and benefits to testing both full and partial invariance.

Mean Group Comparisons

Ultimately, an assessment's utility lies in its usefulness for client diagnosis (identification and referral), program evaluation, and research. This study provides a foundation for such work by revealing evidence of mean differences across genders and ethnic/racial groups on several subscales of adolescent connectedness, with the largest differences between genders.

Between girls and boys, statistically significant gender differences in observed means were found on Connectedness to Friends, Connectedness to Siblings, Connectedness to School, Connectedness to Peers, Connectedness to Teachers, and Connectedness to Reading subscales. These differences favored the girls and typically reflected medium effect size differences (Cohen's *ds* between 0.12 and 0.63). A significant but very small difference on Connectedness to Neighborhood was the only subscale on which the boys scored higher than girls. There were no gender differences on the Connectedness to Parents, Connectedness to Self-in-the-Present, or Connectedness to Self-in-the-Future subscales.

Statistically significant ethnic/racial group mean differences were found between Caucasian and ethnic minority (i.e., African Americans and Latinos) youth but represented relatively small effect sizes (Cohen's *ds* between 0.08 and 0.25). Caucasian youth scored higher than ethnic minority youth on the Connectedness to Neighborhood and Connectedness to Friends subscales but lower on the Connectedness to Siblings subscale. All groups differed on the Connectedness to Self-in-the-Present and Connectedness to Self-in-the-Future subscales, with African Americans reporting the highest and Latinos the lowest mean scores. Latinos also reported the lowest levels of connectedness to reading. These differences are consistent with the current literature on adolescent connectedness.

What was contrary to the literature was the absence of between-ethnic group differences in connectedness to school (and, to a lesser degree, to parents), and this may reveal one of the advantages of using the Hemingway subscales over other measures. The absence of differences in school connectedness reported here likely reflects the fact that most scales of school connectedness merge connectedness to teachers, peers, and school. Yet we found Caucasian youth were more connected to their teachers than were African American youth and that only African American and Latino youth differed on connectedness to peers. This suggests that an assessment of each domain of school connectedness is more accurate or revealing than using a global scale. Prior research may have suggested group differences on school connectedness when, in fact, the true differences were actually on connectedness to teachers or peers.

Unlike research on social connectedness among adults (e.g., Lee & Robbins, 1998), research on adolescent connectedness has consistently described connectedness as ecologically and relationally specific. Hoyt, Warbasse, and Chu (2006) suggested that studies such as this one can provide the evidence of construct multidimensionality that is necessary to justify the use of separate subscales. Our findings suggest the Hemingway's connectedness subscales (e.g., to peers, teachers, and school) are conceptually and statistically distinct—only one of these interfactor correlations was greater than .70—and that comparisons using specific subscales within a given context can yield surprisingly different findings. This, along with the evidence of discriminant validity,

bodes well for using the Hemingway's separate subscales in research and in the field.

Lessons Learned With Tests of Partial Invariance

The results of this study highlight the consequences of not testing measures using both full and partial invariance models, as conclusions related to latent mean differences sometimes varied on the basis of the model estimated. Within this study, the individual CFA models for each gender and ethnic group sample suggested that the same factor structure (e.g., number of items per factors, pattern of fixed and freed parameters) existed across each group and, from a practical perspective, the criteria for measurement invariance were met. However, from a statistical perspective—that is, estimating the change in chi-square when a given factor loading and/or intercept was allowed to be freely estimated rather than being held constant across groups—a few items did not display factor loading or intercept invariance. This evidence of factor noninvariance suggests that youth of different genders or ethnic/racial groups interpreted, conceptualized, and/or simply responded to some of these items differently. Although these differences should be considered exploratory and preliminary, they may contribute to theory.

Gender differences in the role of communication with friends. Two of the largest item differences were on the Connectedness to Friends factor, on which two items (Item 32 and Item 52) measuring time spent talking with friends had significantly higher intercepts for girls than for boys. This suggests that the item responses or amount of communication for girls with their friends was significantly higher than for boys having the same overall latent trait score on connectedness to friends. Because item intercepts contribute to the factor score, these items would produce higher factor score means for girls than boys on Connectedness to Friends. Stated differently, at the average factor score ($\xi = 0$), girls have higher item responses than boys. Of course, as Byrne and Stewart (2006) explained, intercept noninvariance is generally less serious than factor loading noninvariance, such that the primary utility of this finding may be in how it helps researchers understand gender-specific elements of connectedness. Nevertheless, the lack of invariance at the unstandardized factor loading or intercept level renders between-gender mean comparisons using the Connectedness to Friends subscale dubious.

Gender differences in the role of trust in adolescent connectedness. There appeared to be only a few circumstances under which unstandardized factor loadings differed between genders. For example, Items 12 and 14 both measure trust as an indicator of connection. These items had higher unstandardized factor loadings for boys (.88 and .65, respectively) than for girls (.69 and .44, respectively), suggesting that the relationship between their item responses and overall Connectedness to Friends and Connectedness to Parents scores changed at different rates for boys and girls. Moreover, girls had significantly higher intercepts on these items than did boys. As shown in Figure 2, girls had higher scores than boys on the trust item, but more so for youth who were least connected to their friends. This interaction makes it difficult to compare genders in connectedness to friends as Item 12 functions differently depending on the respondent's degree of overall connectedness to friends.

Using Full Versus Partial Invariance Models

Although there were only a few subscales demonstrating evidence of partial rather than full invariance, the latent mean differences resulting from these models render the use of the Connectedness to Friends and the Connectedness to Self subscales suspect when conducting cross-cultural and gender comparisons. Compared with latent means estimated using a full invariance model, our follow-up analyses that relaxed the constraints on noninvariant items to create a partial invariance factor model resulted in smaller mean difference effect sizes between Caucasians and African Americans on both the Connectedness to Friends ($d_{\text{partial}} = -0.01$ vs. $d_{\text{full}} = 0.18$) and Connectedness to Self-in-the-Future ($d_{\text{partial}} = -0.05$ vs. $d_{\text{full}} = -0.23$) factors. Evaluating the gender comparisons, we found that the Connectedness to Friends factor mean difference effect size was larger when using the full invariance model ($d_{\text{partial}} = -0.26$ vs. $d_{\text{full}} = 0.53$). Yet the partial invariance model yielded larger effect sizes for gender differences on the Connectedness to Self-in-the-Present factor ($d_{\text{partial}} = -0.18$ vs. $d_{\text{full}} = 0.04$). All of these differences are greater than .10 and are bolded in Table 7.

When considering these effect size differences between invariance models, recognize that the amount of bias is unknown and, for practical purposes, neither effect size is necessarily correct. The full invariance model incorrectly assumes that each item contributes the same amount of weight to the factor, whereas the partial invariance model created factor scores using a different weighting schema. Related to the latter situation, if one creates factor scores using a different equation (i.e., different set of unstandardized factor loadings and/or intercepts), the researcher is not necessarily comparing the same factors or constructs.

Collectively, these results suggest that when an assumption of scale invariance is made by program evaluators or researchers (as is done implicitly when observed scores reflect item means) but the subscale is only partially invariant, researchers are likely to produce biased and invalid effect sizes. These errors would mischaracterize group differences, promulgating incorrect information. Most unfortunate for the field is that where noninvariance occurs, this should serve as a harbinger for researchers, signaling them to further explore the meaning of a given construct and the reasons for between-group variability on items or scales. But, where invariance has not been tested, no such signal will be heard.

Implications for Noninvariant Items

Given that an assumption of partial invariance at times may be more appropriate (Schmitt & Kuljanin, 2008), it is important for scale users to consider early on how to deal with items not found to be invariant, such as the items on trust and talkativeness. Research (Cheung & Rensvold, 1999; Millsap & Kwok, 2004) indicates that several procedures can be used if the factor model is not invariant: (a) Delete the noninvariant items, (b) use all the items assuming that differences are small in the population and will not adversely influence the mean differences, (c) avoid using the scale altogether or use it but interpret the scores independently (avoiding group comparisons), and/or (d) use the partial invariance model. The fourth option, however, requires large samples. For users of the Hemingway whose samples are small (e.g., $n < 300$), we believe Option a (delete invariant items) is unwise because

doing so creates new versions of the subscale that will not benefit from existing evidence of subscale construct validity (e.g., Karcher, 2001; Karcher et al., 2008). When the third option (avoid group comparisons) is not tenable, the second option will work for gender and ethnic group comparisons on most subscales, specifically when between-group differences on the underlying factor structures are small. As shown in Table 7 and described above, on three factors, there were larger than acceptable between-group differences in the estimated effect sizes when tests were conducted using partial and full invariance models. These are the Connectedness to Friends and Connectedness to Self-in-the-Present subscales for gender comparisons and the Connectedness to Friends and Connectedness to Self-in-the-Future subscales for mean comparisons between Caucasian and African American youth.

Implications for Theories of Attachment During Adolescence

The present study converges with several aspects of attachment theory. First, the connectedness items about affect and action consistently loaded together. Like the two main dimensions of the attachment behavioral system in childhood (viz., proximity seeking and experiencing pleasure and security in specific relationships and contexts), affect and action also appear to be essential elements of connectedness among adolescents. Second, evidence of subscale discriminant validity affirm the person- and place-specific nature of the Hemingway subscales, which is consistent with Ainsworth's (1989) proposition that attachment tendencies differentiate into more distinct forms of "affectional bonds" (p. 709) in adolescence. Third, in addition to the interpersonal and context-specific "worlds" of connectedness (Cooper, 1999), the Hemingway includes two intrapersonal connectedness-to-self subscales, which demonstrated evidence of construct and discriminant validity. These constructs may provide a new way to examine Bowlby's (1969) description about the importance of working models of the self (pp. 710–713).

Yet, between-group mean differences, as well as item-specific noninvariance, point toward new questions. A better understanding is needed of the vicissitudes of this "connectedness-to-self" phenomenon and particularly why it may differ between Black and White adolescents. Item-level gender differences in the role of trust in connectedness to friends and to parents and in rates of talkativeness as indicators of connectedness to friends also deserve further study.

Special Considerations When Using the Connectedness to Siblings Subscale

How the Connectedness to Siblings subscale is used in research and in applied settings needs to be given serious attention. For this study, we excluded the singletons from the analyses and conducted analyses that simply compared subjects with siblings. Thus, the factor invariance results and mean comparisons should only be interpreted as relevant to individuals with siblings. The exclusion of singletons, of course, poses a limitation to the external validity for singletons. However, to address this limitation, invariance analyses were conducted between singletons and subjects with siblings. The results, available in the online supplement, indicated

that the models are invariant across these groups and therefore the results should generalize to singletons.

There are a few other points all scale users should consider when addressing this sibling problem. The first is to explicitly request that respondents identify their singleton status. The second is that if singletons' data is treated as missing data on the Connectedness to Siblings subscale, users should verify the validity of the missing data method by testing for factor structure invariance. (Again, we conducted such analyses, but because our designation of singletons is questionable, we do not report them here.) Of course, this approach is controversial and therefore users may elect to omit these subjects, as was done within this study. A third option is to test whether sibling status is a moderator of the associations between the other variables of interest in one's statistical models. Clearly, how to handle inapplicable data or appropriately missing data is an area that deserves attention (Marshall, Morales, Elliot, Spritzer, & Hays, 2001).

Unexamined Sources of Potential Invariance and Questions Raised by This Study

Another limitation of this study was the lack of information on socioeconomic status, older adolescents, and other ethnic groups. For example, the small ethnic/racial group mean differences might have been absent altogether had socioeconomic status been accounted for. Alternatively, it may be that the factor structures are not invariant across other ethnic groups or among older adolescent respondents, such as those in high school or college.

This study may raise as many questions as it answers about measuring adolescent connectedness. Future researchers should examine (a) the role of appropriately missing data (such as for siblings and singletons), (b) how to deal with noninvariant items (e.g., negatively worded items, trust items) or scales, and (c) whether to assess factor structure invariance across additional groups of subjects (e.g., age or grade differences, different socioeconomic status groups).

Overall, however, there is strong evidence that, when assessed using the Hemingway: Measure of Adolescent Connectedness, adolescent connectedness can be characterized by an ecology of adolescent connectedness. In terms of factor structure invariance, most factors (except arguably Connectedness to Friends and Connectedness to Self) appeared invariant across the groups tested, making these connectedness subscales promising for assessment and evaluation purposes across gender and with African American, Caucasian, and Latino early adolescents.

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(Appendix follows)

Appendix

Hemingway—Measure of Adolescent Connectedness

From *The Hemingway: Measure of Adolescent Connectedness: A Manual for Scoring and Interpretation* (pp. 24–26) by M. J. Karcher, 2005, unpublished manuscript, University of Texas at San Antonio. Copyright 2005 by M. J. Karcher. Reprinted with permission.

Instructions: First, tell us, do you have any brothers or sisters? No Yes (circle one).

Next, please use this survey to tell us about yourself. Read each statement. CIRCLE the number that best describes how true that statement is for you or how much you agree with it. If a statement is unclear to you, ask for an explanation. If it still unclear, put a “?”.

How TRUE about you is each sentence? not at all = 1, not really = 2, sort of true = 3, true = 4, very true = 5.

	Not at All	Not Really	Sort of	True	Very True
1. I like hanging out around where I live (like my neighborhood).	1	2	3	4	5
2. Spending time with friends is not so important to me.	1	2	3	4	5
3. I can name 5 things that others like about me.	1	2	3	4	5
4. My family has fun together.	1	2	3	4	5
5. I have a lot of fun with my brother(s) or sister(s). (Skip if you have none.)	1	2	3	4	5
6. I work hard at school.	1	2	3	4	5
7. My classmates often bother me.	1	2	3	4	5
8. I care what my teachers think of me.	1	2	3	4	5
9. I will have a good future.	1	2	3	4	5
10. I enjoy spending time by myself reading.	1	2	3	4	5
11. I spend a lot of time with kids around where I live.	1	2	3	4	5
12. I have friends I'm really close to and trust completely.	1	2	3	4	5
13. There is not much that is unique or special about me.	1	2	3	4	5
14. It is important that my parents trust me.	1	2	3	4	5
15. I feel close to my brother(s) or sister(s). (Skip if you have none.)	1	2	3	4	5
16. I enjoy being at school.	1	2	3	4	5
17. I like pretty much all of the other kids in my grade.	1	2	3	4	5
18. I do not get along with some of my teachers.	1	2	3	4	5
19. Doing well in school will help me in the future.	1	2	3	4	5
20. I like to read.	1	2	3	4	5
21. I get along with the kids in my neighborhood.	1	2	3	4	5
22. Spending time with my friends is a big part of my life.	1	2	3	4	5
23. I can name 3 things that other kids like about me.	1	2	3	4	5
24. I enjoy spending time with my parents.	1	2	3	4	5
25. I enjoy spending time with my brothers/sisters. (Skip if you have none.)	1	2	3	4	5
26. I get bored in school a lot.	1	2	3	4	5
27. I like working with my classmates.	1	2	3	4	5
28. I want to be respected by my teachers.	1	2	3	4	5
29. I do things outside of school to prepare for my future.	1	2	3	4	5
30. I never read books in my free time.	1	2	3	4	5
31. I often spend time playing or doing things in my neighborhood.	1	2	3	4	5
32. My friends and I talk openly with each other about personal things.	1	2	3	4	5
33. I really like who I am.	1	2	3	4	5

	Not at All	Not Really	Sort of	True	Very True
34. My parents and I disagree about many things.	1	2	3	4	5
35. I try to spend time with my brothers/sisters when I can. (Skip if you have none.)	1	2	3	4	5
36. I do well in school.	1	2	3	4	5
37. I get along well with the other students in my classes.	1	2	3	4	5
38. I try to get along with my teachers.	1	2	3	4	5
39. I do lots of things to prepare for my future.	1	2	3	4	5
40. I often read when I have free time.	1	2	3	4	5
41. I hang out a lot with kids in my neighborhood.	1	2	3	4	5
42. I spend as much time as I can with my friends.	1	2	3	4	5
43. I have special hobbies, skills, or talents.	1	2	3	4	5
44. My parents and I get along well.	1	2	3	4	5
45. I try to avoid being around my brother/sister(s). (Skip if you have none.)	1	2	3	4	5
46. I feel good about myself when I am at school.	1	2	3	4	5
47. I am liked by my classmates.	1	2	3	4	5
48. I always try hard to earn my teachers' trust.	1	2	3	4	5
49. I think about my future often.	1	2	3	4	5
50. I usually like my teachers.	1	2	3	4	5
51. My neighborhood is boring.	1	2	3	4	5
52. My friends and I spend a lot of time talking about things.	1	2	3	4	5
53. I have unique interests or skills that make me interesting.	1	2	3	4	5
54. I care about my parents very much.	1	2	3	4	5
55. What I do now will not affect my future.	1	2	3	4	5
56. Doing well in school is important to me.	1	2	3	4	5
57. I rarely fight or argue with the other kids at school.	1	2	3	4	5

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Connectedness Among Chilean Adolescents: Factor Analysis of the Hemingway Measure of Adolescent Connectedness

La Conectividad Entre Adolescentes Chilenos: Un Análisis Factorial de la Escala Hemingway Measure of Adolescent Connectedness

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The construct of connectedness was investigated among 390 Chilean adolescents using the *Hemingway Measure of Adolescent Connectedness* (Hemingway; Karcher, 2003). Participants were 7th-12th graders at an urban Santiago Catholic school. Results of a principal-axis exploratory factor analysis revealed an 11 factor structure that accounts for 61.92% of total explained variance of adolescent connectedness measured by the Hemingway, similar to results found in the adolescent samples in the United States. Two additional Hemingway subscales (connectedness to siblings and to boyfriend/girlfriend) are also described. Correlations between domains of connectedness and additional data obtained from these adolescents, their parents, and their teachers support the construct validity of the measure in this Chilean sample. Connectedness is an important protective factor among adolescents across many national contexts and the Hemingway is a promising measure for use with Chilean adolescents.

Keywords: connectedness, adolescents, measurement, risk factors, protective factors

Se examinó el constructo conectividad en 390 adolescentes chilenos en un colegio urbano y católico de Santiago. Mediante un análisis factorial exploratorio de la escala *Hemingway Measure of Adolescent Connectedness* (Hemingway, Karcher, 2003) se observó una estructura de 11 factores que da cuenta de un 61,92% de la varianza explicada de la conectividad de los adolescentes medida por la escala Hemingway, lo cual es muy similar a los resultados obtenidos en muestras de adolescentes estadounidenses. También se describen dos subescalas adicionales (la conectividad con los/las hermanos/as y con los/las pololos/as). Las relaciones entre los factores de conectividad y los datos reportados por los adolescentes, sus padres y profesores contribuyen también a la validez de constructo de la escala en esta muestra chilena. Para los adolescentes de distintos contextos culturales la conectividad es un factor importante de protección y la escala Hemingway es un instrumento de uso prometedor con adolescentes chilenos.

Palabras clave: conectividad, adolescentes, medición, factores de riesgo, factores protectores

Issues of autonomy and connection are at the forefront of development during adolescence (Beyers, Goossens, Vansant, & Moors, 2003; Clark & Ladd, 2000; Dwairy, Achoui, Abouserie, & Farah, 2006; Grotevant & Cooper, 1998; Huijberts, Oosterwegel, Vandervalk, Vollebergh, & Meeus, 2006; Saraví, 2009). Connectedness is defined as the experience that occurs “when a person is actively involved with another person, object, group, or environment, and that involvement promotes a sense of comfort, well-being, and anxiety reduction” (Townsend &

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McWhirter, 2005, p. 193). This definition is consistent with other literature that highlights both behavioral (e.g., involvement) and emotional (e.g., comfort) dimensions in understanding how adolescents experience different contexts and relationships (Barber & Schluterman, 2008; Karcher & Sass, 2010; Resnick et al., 1997).

In adolescent populations connectedness is measured by examining the different domains of an adolescent's life, including school, family, and social environments. While the evidence supports the importance of connectedness for adolescents, and its potential as a target of prevention efforts (e.g., Karcher & Finn, 2005), the construct of connectedness has not been validated in many cultural and national contexts. One measure of youth connectedness, the *Hemingway Measure of Adolescent Connectedness* (Hemingway), has a number of benefits including its attention to multiple dimensions of connectedness. The purpose of the present study was to determine the factorial structure of the Hemingway among Chilean adolescents and demonstrate its construct validity. Doing so contributes to understanding universal and culturally specific aspects of connectedness and may provide a useful measurement tool for use with Chilean adolescents.

To understand the measurement of connectedness and the Hemingway, it is important to describe first the construct and its theoretical roots. The construct of adolescent connectedness emerges from adolescents' need for belongingness and relatedness. Karcher's (2003) manual on the construction of the Hemingway notes that it was built upon an interpretive-hermeneutic framework. Consistent with the interpretive framework, adolescent experiences of connection are considered to be shaped over time and, therefore, present and future time orientations are reflected in the measure's subscales (Karcher, 2003). The measure also reflects the hermeneutical notion that human beings are best understood via their interpretations of their connectedness to the world over time. The Hemingway also attends to youth's behavioral and affective experience of connectedness to conventional (family, religion, and school) and unconventional (peers, romantic partners, neighborhood, and self) worlds.

The development of specific Hemingway items draws from the self psychology concept (e.g., Kohut, 1977; Kohut & Wolf, 1978) that healthy self development emerges through both the validation received within dyadic relationships and the experience of relationships with competent, protecting, and consistent others. When provided sufficient praise, empathy, and attention by significant others, youth learn to praise, esteem, and soothe themselves, the hallmark of self-development and mature forms of connectedness (see Karcher, 2003). Therefore, the Hemingway subscales are relational and contextual and designed to illuminate adolescents' behavior in terms of their ability to satisfy their need to belong through connectedness with people and places over time (Karcher, 2003).

Developmental principles within the ecological model (Bronfenbrenner, 1979) and prevention research also contribute to the conceptualization and measurement of connectedness. The ecological model highlights the importance of context in human development and the bidirectional influences that occur between the developing child/adolescent and his/her social worlds over time. The microsystems of family and school are independently important, interact within the mesosystem, and are affected by exosystemic features, such as poverty and public policy. All of these environments fall within the macrosystemic contexts that include cultural interactions and broader social values and biases. The importance of youth connections within these systems is reflected in the Hemingway measure through its subscales on the proximal contexts of family, school, and peers, as well as on more distal contexts of neighborhood/community and culture, as important worlds of youth connection (Karcher, 2003). These contexts were identified as central to adolescents in a series of focus groups conducted by Karcher (2003) as part of the subscale and item development.

Finally, Karcher (2003) aimed to develop a tool useful in assessing the effects of prevention intervention research, specifically, interventions designed to promote social development and to reduce problem behaviors. As a result, the scales include dimensions (such as Reading) that are not described explicitly in the literature upon which the theory is built, but that are central outcomes sought in prevention research and program development. To that end, the Hemingway was developed:

to aid in the study of the consequences of disconnection (e.g., substance use, violence, and depression; e.g., see Hawkins, Catalano, & Miller, 1992), as well as of the activities and attitudes that inform positive social development and reflect strengths in individuals and in communities (e.g., Clark & Ladd, 2000; Grotevant & Cooper, 1998; Lynch & Cicchetti, 1998). (Karcher, 2003, p. 3)

A growing number of studies have examined relationships between connectedness and various risk and protective factors among adolescents in various national contexts. For example, von der Lippe and Amundsen (1998) found a relationship between connectedness and the quality of conflict negotiation in the families of adolescent girls in Scandinavia. Kumi-Kyereme, Awusabo-Asare, Biddlecom, and Tanle (2007) reported high levels of adolescent connectedness to family, adults, friends, school, and religion in Ghana, and recommend fostering connectedness as part of multifaceted efforts to promote optimal sexual and reproductive health. Karcher and Lee (2002) found that dimensions of connectedness were significantly and directly related to self-esteem among Taiwanese middle school students. In the United States, the National Longitudinal Study of Adolescent Health found that parent-family connectedness and perceived school connectedness were protective against seven out of eight measures of health-compromising behaviors, including the adolescents' emotional distress, suicidal thoughts and behaviors, and violence (Resnick et al., 1997). These and other studies implicate the role of connectedness in patterns of risk behaviors among adolescents around the world. Moreover, promoting the connectedness of youth to their schools, their families, their own future, and to the world as a global community is central to healthy adolescent development and is a specific goal of many school-based and family-centered intervention programs in the United States and elsewhere (e.g., Dishion, Bullock, & Kiesner., 2008; Evans et al., 2005; Grossman & Bulle, 2006; Roth & Brooks-Gunn, 2003; World Health Organization, 2003).

For youth in Latin America, Saraví (2009) emphasized the critical social importance of adolescent belongingness across the continent. More specific to Chile, there is clear evidence that the construct of belongingness or relatedness is meaningful, although the construct has not been measured specifically as connectedness. For example, Chilean adolescents report generally positive relationships within their families (Martinez, Cumsille, & Thibaut, 2006) and in particular report greater satisfaction in their relationships with their mothers than with their fathers, although their level of satisfaction with both is quite high (Herrera, 2007). Chilean adolescents are not highly likely to talk with their parents about topics such as religion, sexuality, and what they do in their free time. However, among those that do, they are more likely to talk with their mothers than their fathers about such matters. Family problems identified by Chilean youth ages 15-19 include lack of time together (46.5%), lack of communication (37.5%), and poor parent/child relationships (20.5%). Most young Chileans (82%) believe that their mothers have dedicated sufficient time to them, while 59% believe that their fathers have given them enough time (Herrera, 2007; Martinez et al., 2006). These statistics provide some insight into parent-child relationships that relate to parent and family connectedness in Chile. But the research cited does not measure connectedness directly, attend to connectedness across contexts, or attend to time dimensions, all of which could enhance understanding of Chilean adolescents' connectedness in a manner that holds promise for family research in Chile.

Connection to and engagement with family and school have been identified as important protective factors for Chilean adolescents, particularly with respect to destructive behaviors, drug and alcohol use, and risky sexual behavior (Florenzano, 2002; Magaña Frade & Meschi Montaldo, 2002). Chilean adolescents who perceive their families to be dysfunctional have a higher prevalence of risk behaviors, emotional symptoms, and premature sexual intercourse than those who do not perceive their families as dysfunctional (Santander et al., 2008). Martinez et al. (2006) condense the findings of government surveys in education, health, and labor, as well as numerous research studies, to illuminate the status of adolescents in Chile. While there is evidence that constructs related to adolescent connectedness with families, peers, and schools are associated with risk and protective factors in Chile, the research to date has not directly measured the connectedness construct or its relationship with risk behaviors among Chilean adolescents.

In order to understand how connectedness may serve as a protective factor among youth in various cultures, it is first important to clarify the nature of this construct and then to effectively measure it. Too often measures are employed across cultures with no regard to the construct validity of the measure (Bernal, Jiménez-Chafey, & Domenech Rodríguez, 2009). This is a particularly acute issue in conducting international social science research. At the same time, the universality of certain adolescent risk and protective factors across the world supports a strategy of exploring whether a construct defined within one cultural context is salient for another group in a different context. As such, examining the structure of adolescent connectedness within a group of Chilean adolescents, and how connectedness is related to other risk and protective factors, contributes to establishing the construct validity of connectedness with this population and may inform prevention and intervention efforts with Chilean youth and their families.

In summary, the utility of the Hemingway for measuring adolescent connectedness includes its assessment of both affect and behaviors in specific relationships, contexts, and activities, which is consistent with how the construct is defined and construed in the literature (e.g., Barber & Schluterman, 2008; Townsend & McWhirter, 2005); its potential for evaluating interventions, because family and school connectedness commonly are targeted by youth programs (Roth & Brooks-Gunn, 2003); and third, its promise with respect to predictive validity, because several of the connectedness subscales are inversely associated with risk factors among adolescents in the United States and elsewhere (including drug use, risky sexual behavior, and school attrition) that predict future negative outcomes (Karcher, 2003). The 15 Hemingway subscales fall within four broad conceptual domains of family, friends, school, and self, and the subscales fall under one of three ecological levels that include connectedness to self (including present self and future self), connectedness to others (including friends, parents, father, mother, siblings, teachers, peers, and boyfriend/girlfriend), and connectedness to society (including different cultures, religion, reading, school, and neighborhood).

The primary aim of the present study, then, was to assess the factorial and construct validity of the Hemingway for measuring connectedness among Chilean adolescents. In a measurement invariance study of academic-related connectedness among adolescents in the United States and a (different) sample of Chilean adolescents, we found factorial validity for the subscales, but also that some subscales were non-invariant. This suggested that academic-related connectedness is valid to measure among Chilean youth, but that direct score comparisons between Chilean and United States youth on some of the academic-related subscales should not be made (Castro-Villarreal, Sass, McWhirter, McWhirter, & Karcher, *in press*). This further highlights the importance of clarifying the factor structure of the full range of subscales on the Hemingway measure specifically among Chilean youth.

Toward this end, in this study we first examined the factor structure of the Hemingway in another sample of Chilean adolescents, as an important step toward understanding the potential universality and cultural specificity of the connectedness construct. Second, we examined correlations between the resulting connectedness factors and a set of common risk and protective factors for adolescent problem behavior in Chile (Florenzano, 2002). These analyses provide initial concurrent and discriminant validity evidence for connectedness as a multidimensional construct and for the utility of the Hemingway with this population.

Method

Participants

A total of 425 7th-12th grade students attending the same school participated in a larger data collection, with 390 completing the connectedness measure that is the focus of the present study. School records indicate that over 95% of students in each grade level participated. The school was a partially-subsidized Catholic school located in urban central Santiago, Chile. Students in this school are in the poor to lower-middle class of the socioeconomic status

(SES) continuum. Average monthly household income reported by participating parents was about \$380,000 pesos (US\$760.00 based on the exchange rate at the time of data collection) per household, with the median income of \$333,000 pesos (US\$666.00) and the modal monthly income of \$250,000 pesos (US\$500.00). Tuition cost to families was \$25,000 pesos (US\$50.00) per month per child. As a means of comparison, according to a report by Celhay, Sanhueza, and Zubizarreta (2009), average income for heads of households in Chile who were between the ages of 28 and 40 and with 12 years of education was US\$813.00.

Student participants ranged in age from 12-19 years ($M = 15.5$, $SD = 1.84$). There were 207 male and 183 female participants. Sixty-two percent of the student participants lived with their biological mother and father, 31% lived with their biological mother, but not with their biological father, 2% lived with their biological father, but not with their biological mother, and 3.5% lived with neither their biological mother nor biological father. A national survey of Chilean youth indicates that approximately 65% of youth ages 15-19 live with both parents and 20.5%, with their mother only.

Participants also included 376 parents (268 mothers and 108 fathers). With respect to parent education, for mothers 20% reported their highest level of education was less than a high school degree, 33% a high school degree, 5% some technical training, 15% completed technical training, 5% reported some college, 2.7% had completed college (were *licenciado*), 17% had a college degree (were *titulado*), and 2.6% reported having a graduate degree. For fathers, 18% reported that their highest level of education was less than a high school degree, 31% reported completing a high school degree, 3% had some technical training, 17% completed technical training, 8.2% had some college, 2.5% completed college (were *licenciado*), 17.5% had a college degree (were *titulado*), and 3.4% reported having a graduate degree. In 2004 nearly half of all adult Chileans did not possess any secondary schooling (Holm-Nielsen, Thorn, & Prawda, 2004), but education reforms since 1990 have increased educational attainment. In 2008, 78% of Chileans had completed secondary school by age 24 (Chile, Ministerio de Educación, 2010). Overall, participants in this study had parents with higher average levels of education and lower average reported incomes than Chileans in general.

Teachers ($N = 12$; 6 male, 6 female) who instructed grades 7-12 (two classrooms and teachers per grade level) completed a teacher inventory of behaviors of the students for each participating adolescent in their primary classroom. One 9th grade classroom teacher opted not to complete the inventories. Teacher experience varied from 5 years to 18 years of teaching.

Measures

The measures we utilized in this study were part of a larger multi-agent, multi-method research project.

Hemingway Measure of Adolescent Connectedness. The theoretical basis for adolescent connectedness in the Hemingway is rooted in adolescents' need for belongingness and relatedness (Baumeister & Leary, 1995) and the notion that persons are best understood by understanding their interpretations of connectedness to their different contexts over time (Nakkula & Selman, 1991). The Hemingway measure was created to assess connectedness in different ecological domains with time as a dimension (Karcher, 2003). The measure was developed systematically using grounded theory approaches, item response theory, and factor analytic studies (Karcher, 2003). An item pool was developed after conducting focus groups with youth in schools and with graduate students familiar with the concepts of connectedness, belongingness, and affiliation. The measure was then tailored to include appropriate language for adolescents (Karcher, 2003). Factor analyses were then used to confirm the underlying structure of the connectedness construct. The resulting final 78 items Hemingway (Karcher, 2003) was designed to assess connectedness among adolescents in the different domains most important to their ecology, including connectedness to parents, religion, peers, school, self, and neighborhood.

The final version of the measure includes 15 subscales with questions related to both behavior and feelings (e.g., caring) toward the different contexts in which adolescents interact. These 15 subscales fall into three broad dimensions of connectedness: to self, to others, and to society. *Connectedness to self* includes scales that assess: (a) Present Self, which reflects positive feelings about the self over time and across relationships and the ability to be alone and to tolerate rejection and criticism (Kohut & Elson, 1987); and (b) Future Self (Nakkula & Selman, 1991). *Connectedness to others* includes scales that assess connectedness to: (c) Parents; (d) Mother; (e) Father; (f) Friends; (g) Teachers; (h) Siblings; (i) Peers/Classmates; and (j) Boyfriend/Girlfriend. *Connectedness to society* includes scales related to: (k) School; (l) Neighborhood/Community; (m) Different Cultures; (n) Reading; and (o) Religion. Sample items include "Spending time with my friends is a big part of my life", "I enjoy spending time with my parents", and "I want to be respected by my teachers." Answers range along a 5-point Likert-type scale anchored by 1 (*Not at all true*) to 5 (*Very true*). Karcher (2003) reports adequate to strong internal consistency and evidence of concurrent validity in United States samples, with evidence of validity in an international sample as well (Karcher & Lee, 2002). Internal consistency for the total scale for the current sample of Chilean adolescents was $\alpha = 0.88$.

Youth Questionnaire. Adolescent participants completed a brief standard demographic questionnaire to assess basic information on a number of areas, including SES (family income, parent education and occupation), number of people living in the home, number of rooms in the home, age, sex, and grade level. In addition, we measured adolescent self-reported risk behaviors using measures developed in a national institute of drug abuse, a funded intervention trial referred to as *Community Action for Successful Youth* (Biglan, Metzler, & Ary, 1994) and later revised and updated by Connell, Dishion, Yasui, and Kavanagh (2007). These measures have been employed in studying adolescent risk behavior in the United States, Italy, the Netherlands, and Canada (e.g., Boislard, Poulin, Kiesner, & Dishion, 2009; Venkatraman, Dishion, Kiesner, & Poulin 2009). Four subscales from this Youth Survey were used. *Alcohol Use* ($\alpha = 0.55$) was measured using self-report of how often, in the last month, the youth drank beer, wine, beer or wine mixed with cola (*Fanschop* or *Navegado*), or hard alcohol. Response options on a 14-point scale ranged from 0 to 41 or more times in the last month. *Problem Behaviors* ($\alpha = 0.78$) were assessed by 13 items, each rated on a 6-point Likert-type scale ranging from 1 (*never*) to 6 (*more than 20 times*). Example items are "Skipped school without an excuse", "Stole or tried to steal something worth \$2000 pesos or more", "Purposefully damaged or tried to damage property." *Parental Monitoring* ($\alpha = 0.82$) was assessed using five items with a 5-point Likert-type response options ranging from 1 (*never or almost never*) to 5 (*always or almost always*). An example item is "How often does at least one of your parents know where you are after school?" *Positive Family Relations* ($\alpha = 0.88$) was assessed with 11 items, each rated on a 5-point Likert-type scale ranging from 1 (*never*) to 5 (*always*). An example item is "I really enjoy being with my parents".

Parent Questionnaire. Parents completed a brief questionnaire which included 39 items related to parent perceptions of the relationship and trust between parent and child, positive family relations, and parental monitoring. The subscale of *Positive Family Relations-Parents* was selected for the correlation analysis. The *Positive Family Relations-Parents* subscale was assessed with eight items, each rated on a 5-point Likert-type scale ranging from 1 (*never or almost never*) to 5 (*always*). Example items include "I really enjoyed being with my son/daughter," and "I got along really well with my son/daughter". We found an internal consistency of $\alpha = 0.85$ for this subscale for mothers, and an internal consistency of $\alpha = 0.86$ for this subscale for fathers.

Teacher Questionnaire. Teachers completed the *Teacher Measurement of Risk* (TMR) instrument. This 44-item measure, based on Soberman (1995) and modified by Stormshak, Dishion, Light, and Yasui (2005), includes items on a variety of risk and positive behaviors that teachers suspect or know youth may be engaged in, including subscales used in this study

related to three areas: *Attention Problems* (10 items with an internal consistency $\alpha = 0.95$), *Sadness, Aloneness, or Depression* (7 items, $\alpha = 0.90$), and *Suspicion of Drug/Alcohol Use* (2 items, $\alpha = 0.89$). Each of the items was rated on a 10-point Likert-type scale ranging from 1 (*no problem at all*) to 10 (*clear and frequent signs*). For the *Attention Problems* subscale a sample item is “Doesn’t seem to pay attention or is very easily distracted”, for the *Sadness, Aloneness, Depression* subscale a sample item is “Seems sad or depressed”, and for the *Suspicion of Drug/Alcohol Use* subscale a sample item is “Spends time with other students that I suspect are smoking or using other drugs”. Soberman (1995) found that the TMR have high predictive and convergent validity. Research on multiple gating strategies for identifying youth at risk for serious problem behavior revealed teacher ratings of problematic school behavior to be quite predictive of self-reported substance use and court reported delinquency (Dishion & Patterson, 1992).

Each of these measures has been used and validated outside of the United States.

Procedure

Active parental consent was obtained as well as participant assent to participate in the study. Measures were administered to students in intact classrooms by the first author and the research assistant during four class periods (results reported here were part of a larger data collection). Consenting parents completed surveys on site during a parent/teacher meeting. Teachers were paid a small stipend to compensate for their time to complete this measure.

Missing data was not imputed due to the meaningfulness of non-responses for many variables. For example, items assessing connectedness to a boyfriend/girlfriend or to a sibling were skipped if the respondent did not have a boyfriend/girlfriend or was an only child, respectively.

The measures were already available in Spanish; however, in order to identify national and regional differences in language, our research assistant reviewed each word of each measure and made minor modifications to ensure language appropriateness for Chilean Spanish speakers. In addition, the Chilean school psychologist/counselor reviewed each item of each measure and approved them with respect to clarity and comprehension for Chilean youth.

Data Analyses

Inspection of the data indicated that 41 participants did not respond to the items assessing connectedness to Siblings, and 162 did not respond to the items assessing connectedness to Boyfriend/girlfriend. No other subscale items had similar patterns of missing values. We determined that imputation of these items would not be appropriate. Only 113 cases contained complete data for all Hemingway items, a number insufficient for an exploratory factor analysis (EFA) of this measure. Therefore, we dropped the five Sibling and five Boyfriend/girlfriend items and conducted a missing values analysis. Results of the missing values analyses indicated that the data was not missing completely at random, $\chi^2(5705, N = 425) = 6353.8, p < 0.001$. Also, missing values analysis of the data revealed that 35 of the 425 total participants did not fill out any items on the Hemingway, indicating that they were not present when that portion of the survey was administered. So it would not be appropriate to impute data on the missing 35 participants. Thus, we imputed the remaining 68 items for the 390 participants who had completed the majority of the items, using the expectation-maximization algorithm. After describing the results of the EFA on the imputed data set, we also describe below the analyses of the Sibling and Boyfriend/girlfriend items.

We conducted the EFA using principal-axis factoring, with a direct oblimin (oblique) rotation. We chose an oblique instead of orthogonal rotation, expecting that factors would be correlated in the present sample as in previous research findings with this measure (Karcher & Lee, 2002). The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.82 and Bartlett’s test of sphericity was statistically significant ($p < 0.001$); therefore, we proceeded

with the factor analysis (Tabachnick & Fidell, 2001). Multiple criteria were used to evaluate and determine the number of factors to retain, including (a) examination of the scree plot, (b) eigenvalues > 1 , (c) interpretability of the factors, and (d) a minimum of three items loading on the factor (Costello & Osborne, 2005; Tabachnick & Fidell, 2001). Upon completion of the factor analysis, we conducted internal consistency reliability analyses for each subscale, calculating Cronbach's alpha, followed by computation of Pearson product-moment correlation with selected criterion variables to assess the construct validity of the measure. For the correlation analyses, we used pairwise deletions to handle missing data on mother and father reports, since parent-reported data was from the mother or the father, but not from both parents.

Finally, we calculated product-moment correlation coefficients between the Hemingway subscales and multi-source data, in order to provide evidence of concurrent and discriminant validity of the Hemingway factors. This correlation matrix included constructs that have been shown to relate to adolescent connectedness in previous research: (a) youth self-reports of alcohol use, problem behaviors, parental monitoring, and positive family relations; (b) teacher reports of their perceptions of the youth as having attention problems, being sad, alone, and depressed, and suspicion that the child uses drugs and/or alcohol; and (c) mother and father reports of positive family relations, or about enjoying spending time with their child.

Results

The initial results of the EFA on Hemingway data indicated an 18 factor solution based on Kaiser's criterion of eigenvalues above 1.0, and an 11 factor solution based on the scree plot. Five of the 18 factors failed to meet the criteria of possessing three or more items loading at 0.32 or above on the factor (Tabachnick & Fidel, 2001). Based on this finding, and the fact that Karcher (2003) developed the measure to assess 15 domains of connectedness (that included the Sibling and Boyfriend/girlfriend subscales) and reported a 15 factor solution, we next conducted an EFA constraining the results to a 13 factor solution. We tested a 13 factor solution because we had eliminated the Sibling and Boyfriend/girlfriend subscales. This solution, based on all 68 items, explained 60.4% of the variance of adolescent connectedness. One factor consisted of four items, of which two had factor coefficients of 0.33. Given this finding and the scree plot results, we next compared 12 and 11 factor solutions. These explained 58.4% and 56.3% of the variance, respectively, and each had seven factor coefficients below 0.32. The 11 factor solution provided a more interpretable structure; therefore, we retained the 11 factor solution.

The next step in this set of analyses was to eliminate items loading below 0.32 and those that cross-loaded above 0.32 on more than one factor (Tabachnick & Fidel, 2001). First, we eliminated the seven items with factor loadings below 0.32, yielding a solution with two cross loading items and two additional items loading below 0.32. Next, we eliminated these four items, resulting in a 11 factor solution with 57 items that explained 61.92% of the variance; all factor coefficients were 0.32 or higher and no items cross loaded. We present the results of the final factor analysis with 57 items in Table 1, along with subscale titles.

The subscales obtained in the present sample differed from Karcher's (2003) reported subscales in several ways. First, in the Chilean sample Mother and Parents items formed a single subscale instead of two distinct subscales. Second, in the Chilean sample Present Self and Future Self items formed a single subscale instead of two distinct subscales. Third, one Present Self item loaded on the subscale that otherwise consisted of Peers/Classmates items. Finally, a total of 11 items from a variety of original subscales did not load or cross-loaded on subscales in the Chilean sample and were, therefore, dropped from subsequent analyses.

Based on internal consistency reliability analyses, we deleted one additional item (#7) from the connectedness to Peers/Classmates subscale, resulting in $\alpha = 0.73$ for this subscale. All other alphas were > 0.75 with the exception of School connectedness ($\alpha = 0.63$), which could not be improved with the exclusion of items. We present the final subscale alpha coefficients in Table 2.

Table 1
Factorial Solution for the Hemingway Measure of Adolescent Connectedness Among Chilean Youth

Factor and item	Factor loading	Mean	SD
<i>Factor 1: Mother/Parents (10 items)</i>			
		3.95	0.80
63. Mi madre y yo somos muy unidas/os.	0.79		
59. Disfruto compartiendo con mi madre.	0.77		
24. Disfruto compartir tiempo con mis padres.	0.65		
44. Mis padres y yo nos llevamos bien.	0.64		
77. Hablo con mi madre acerca de cosas y problemas muy personales.	0.62		
68. Mi madre se preocupa mucho por mí.	0.57		
54. Mis padres me importan mucho.	0.54		
14. Es importante que mis padres confíen en mí.	0.48		
73. Mi madre y yo discutimos mucho. ¹	0.47		
4. Mi familia y yo nos divertimos juntos.	0.43		
Eigenvalue = 9.32; Variance explained = 16.35%			
<i>Factor 2: Neighborhood (6 items)</i>			
		2.57	1.05
41. Paso mucho tiempo con los jóvenes en mi barrio.	0.87		
11. Me gusta pasar mucho tiempo con los jóvenes de mi barrio.	0.84		
31. A menudo paso tiempo jugando o haciendo cosas en mi barrio.	0.73		
21. Me llevo bien con la mayoría de los jóvenes de mi barrio.	0.64		
51. Mi barrio es aburrido. ¹	0.57		
1. Me gusta andar por donde vivo en mi barrio.	0.48		
Eigenvalue = 5.09; Variance explained = 8.94%			
<i>Factor 3: Reading (4 items)</i>			
		2.98	1.19
20. Me gusta leer.	0.91		
40. A menudo leo cuando tengo tiempo libre.	0.86		
10. Disfruto dedicar un tiempo para leer solo.	0.79		
30. Nunca leo libros en mi tiempo libre. ¹	0.57		
Eigenvalue = 4.51; Variance explained = 7.92%			
<i>Factor 4: Friends (6 items)</i>			
		3.85	0.90
42. Paso tanto tiempo como puedo con mis amigos.	-0.77		
22. Compartir tiempo con mis amigos es parte importante de mi vida.	-0.76		
2. La mejor parte de mi día es cuando estoy con mis amigos.	-0.69		
52. Mis amigos/as y yo pasamos mucho tiempo conversando.	-0.63		
12. Tengo amigos/as muy cercanos/as en los que confío plenamente.	-0.59		
32. Mis amigos/as y yo hablamos abiertamente sobre temas personales.	-0.50		
Eigenvalue = 2.73; Variance explained = 4.78%			
<i>Factor 5: Different Cultures (3 items)</i>			
		3.89	1.16
65. Me gustaría conocer más gente de diferentes grupos culturales.	-0.93		
60. Me gusta conocer jóvenes de otros grupos culturales.	-0.91		
69. Me gusta conocer gente que sea culturalmente diferente a mí.	-0.86		
Eigenvalue = 2.50; Variance explained = 4.38%			
<i>Factor 6: Religion (3 items)</i>			
		2.68	1.29
75. Soy una persona religiosa o con fe.	0.91		
62. Mi religión es muy importante para mí.	0.89		
71. Asisto a un servicio religioso (como la iglesia) regularmente.	0.72		
Eigenvalue = 2.25; Variance explained = 3.95%			

(continues)

Factor and item	Factor loading	Mean	SD
<i>Factor 7: Teachers (4 items)</i>			
		3.30	0.90
38. Trato de llevarme bien con mis profesores.	-0.74		
48. Siempre me esfuerzo por ganarme la confianza de mis profesores.	-0.65		
8. Me importa lo que mis profesores piensen de mí.	-0.58		
50. Casi siempre me gustan mis profesores.	-0.54		
18. Me desagradan varios profesores en mi colegio	-0.34		
Eigenvalue = 2.20; Variance explained = 3.85%			
<i>Factor 8: Present/Future Self (7 items)</i>			
		3.53	0.82
53. Tengo intereses o habilidades únicas que me hacen interesante.	-0.65		
29. Realizo actividades fuera del colegio para prepararme para mi futuro.	-0.59		
43. Tengo pasatiempos especiales, habilidades o talentos.	-0.57		
39. Hago muchas cosas para prepararme para mi futuro.	-0.57		
23. Puedo nombrar tres cosas que a los otros chicos les gusta de mí.	0.47		
49. Pienso constantemente sobre mi futuro.	-0.42		
3. Puedo nombrar cinco cosas que a la gente les gusta de mí.	-0.39		
Eigenvalue = 1.96; Variance explained = 3.43%			
<i>Factor 9: Peers/Classmates (5 items)</i>			
		3.54	0.77
47. Le agrado a mis compañeros/as de curso.	0.65		
37. Me llevo bien con los otros estudiantes de mi curso.	0.60		
17. Me agradan todos mis compañeros/as de curso.	0.55		
7. Mis compañeros/as me molestan. ¹	0.37		
33. Realmente me gusta quien soy.	0.32		
Eigenvalue = 1.77; Variance explained = 3.10%			
<i>Factor 10: Father (4 items)</i>			
		3.41	1.13
64. Mi padre y yo somos muy unidos.	0.90		
67. Mi padre se preocupa mucho por mí.	0.74		
58. Disfruto compartiendo con mi padre.	0.74		
78. Hablo con mi padre acerca de cosas y problemas muy personales.	0.61		
Eigenvalue = 1.57; Variance explained = 2.75%			
<i>Factor 11: School (5 items)</i>			
		3.45	0.70
16. Disfruto estar en el colegio.	0.59		
6. Me esfuerzo en el colegio.	0.49		
26. Me aburro mucho en el colegio. ¹	0.47		
36. Me va bien en el colegio.	0.39		
Eigenvalue = 1.41; Variance explained = 2.48%			
Cumulative percent of explained variance = 61.92%			

Note. $N = 390$. Final solution = 11 factors with 57 total items. Pattern Matrix derived with Principal Axis Factoring extraction, Oblimin (oblique) rotation with Kaiser Normalization. The rotation converged in 15 iterations. Structure matrix of rotated factors is available electronically from the authors.

¹Reverse coded item; this item was removed from the subscale based on internal consistency reliability analysis.

Table 2
Subscale Correlation Matrix (N = 390)

Connectedness factor	α	1	2	3	4	5	6	7	8	9	10	11	12
1. Mother/Parents	0.89	1.00											
2. Neighborhood	0.86	0.12*	1.00										
3. Reading	0.86	-0.10	-0.23***	1.00									
4. Friends	0.84	0.14**	0.29***	-0.03	1.00								
5. Different Cultures	0.93	0.12*	0.09	0.06	0.32***	1.00							
6. Religion	0.87	0.28***	-0.02	0.06	0.09	0.12*	1.00						
7. Teachers	0.76	0.25***	-0.16**	0.16**	0.07	0.19***	0.27***	1.00					
8. Present/Future Self	0.77	0.23***	0.20***	0.12*	0.24***	0.29***	0.20***	0.23***	1.00				
9. Peers/Classmates	0.73	0.36***	0.22***	-0.05	0.32***	0.20***	0.14**	0.27***	0.34***	1.00			
10. Father	0.88	0.57***	0.15**	-0.10*	0.02	0.07	0.14**	0.19***	0.21***	0.26***	1.00		
11. School	0.63	0.21***	-0.02	0.16***	0.13**	0.09	0.17***	0.37***	0.22***	0.33***	0.20***	1.00	
12. Boy/Girlfriend	0.96	-0.06	0.12*	-0.05	0.06	0.17**	0.09	0.09	0.16**	0.06	-0.04	0.05	1.00
13. Siblings	0.88	0.50***	0.07	0.04	0.11*	0.08	0.18***	0.16**	0.26***	0.29***	0.34***	0.11*	-0.05

Note. *** = $p < 0.001$, ** = $p < 0.01$, * = $p < 0.05$. N = 390. Subscale 12: Boy/Girlfriend (n = 266), Subscale 13: Siblings (n = 352).



In order to explore the viability of the 5-item connectedness to Boyfriend/girlfriend subscale and the 5-item connectedness to Siblings subscale, we conducted two EFAs with the original non-imputed data set. In the first EFA we used pairwise deletion of cases with missing items and in the second, listwise deletion of cases with missing items. We compared Factor coefficients for the Boyfriend/girlfriend and Sibling connectedness items in each resulting pattern matrix. In each pattern matrix four of the Boyfriend/girlfriend items and the five Sibling items (nine in total) formed separate, distinct, and viable subscales. In each pattern matrix one Boyfriend/girlfriend item did not load with the other Boyfriend/girlfriend items and did not load on another viable factor. This item was negatively worded and reverse coded, and may not have been well understood by participants. In the EFA conducted using pairwise deletion, factor coefficients ranged from 0.92 to 0.93 for the four Boyfriend/girlfriend items and from 0.66 to 0.86 for the five Sibling items. In the EFA conducted using listwise deletion, factor coefficients ranged from 0.92 to 0.94 for the four Boyfriend/girlfriend items and from 0.67 to 0.91 for the five Sibling items. On the basis of these findings, we constructed connectedness to Boyfriend/girlfriend (four items) and connectedness to Siblings (five items) subscales. Internal consistency reliabilities were 0.96 ($n = 214$) for the connectedness to Boyfriend/girlfriend subscale ($M = 2.65$, $SD = 1.53$) and 0.88 ($n = 337$) for the connectedness to Siblings subscale ($M = 3.72$, $SD = 1.03$).

We present the subscale correlation matrix among the 13 Hemingway subscales (the 11 Hemingway subscales derived from the EFA of the imputed data and the two Hemingway subscales of Boyfriend/girlfriend and Sibling connectedness) in Table 2. Subscale correlations ranged from 0.02 to 0.57, suggesting that the subscales measure relatively distinct dimensions of adolescent connectedness. The correlation of greatest magnitude was between the Mother/Parents and Father subscales (0.57). Overall, the Mother/Parents subscale was correlated with the greatest number of subscales (all but Reading and Boyfriend/girlfriend subscales) while the Boyfriend/girlfriend subscale correlated with the fewest other subscales, specifically only the subscales for Different Cultures, Neighborhood, and Present/Future Self. We present interpretations of these findings in the Discussion.

We present the product-moment correlations between the 13 Hemingway subscales and multi-source data (self report, teacher report, and parent report) in Table 3. These results provide evidence of concurrent and discriminant validity of the Hemingway factors.

As would be predicted from theory and literature on risk behavior, results demonstrated that higher connectedness to Friends, Boyfriend/girlfriend, and to Neighborhood, and that lower connectedness to Mother/Parents, Father, Siblings, Teachers, and School, were all associated with self-reports of alcohol use. A similar pattern was found for self reports of problem behavior, with the addition of significant inverse correlations with connectedness to Religion and Peers/Classmates and no significant correlation between connectedness to Friends and problem behaviors. Parental monitoring was significantly and positively associated with all connectedness subscales except Neighborhood, Friends, Reading, and Different Cultures; self reported positive family relationships were significantly associated with all subscales except Reading. Also consistent with the literature on risk and protective factors, teacher reports of attention problems, sadness, and drug or alcohol use were significantly and inversely associated with connectedness to Mother/Parents, School, Peers/Classmates, and Teachers. Finally, mother and father reports that they enjoy time with their child was significantly associated with Mother/Parents connectedness and Father connectedness, with stronger correlations between mother reports and Mother/Parents connectedness, and father reports and Father connectedness, respectively.

Table 3
Pearson Product Moment Correlations Hemingway Connectedness Subscales With Selected Youth, Teacher, and Parent Reported Variables

Hemingway factor Connectedness related to...	Youth report				Teacher report			Parent report	
	ALC	PROB	PAR MON	POS FAM	ATT	SAD	DRUG ALC	M-POS	D-POS
	<i>n</i> = 349	<i>n</i> = 370	<i>n</i> = 370	<i>n</i> = 370	<i>n</i> = 349	<i>n</i> = 349	<i>n</i> = 349	<i>n</i> = 249	<i>n</i> = 100
Mother/Parent	-0.18**	-0.30**	0.48**	0.71**	-0.13*	-0.16**	-0.15**	.21**	.39**
Neighborhood	0.11*	0.15**	-0.00	0.18**	-0.12*	-0.03	-0.04	0.03	-0.05
Reading	0.08	-0.01	-0.00	-0.04	-0.10	0.04	0.10	0.08	-0.14
Friends	0.16**	0.05	0.01	0.13**	0.01	-0.12*	-0.01	-0.07	-0.12
Different Cultures	0.07	0.02	0.10	0.13*	-0.06	-0.12*	0.04	-0.05	-0.04
Religion	-0.08	-0.19**	0.15**	0.26**	-0.20**	-0.28**	-0.10	0.05	-0.00
Teachers	-0.18**	-0.23**	0.26**	0.21**	-0.34**	-0.24**	-0.23**	0.03	0.10
Present/Future Self	0.07	0.03	0.18**	0.30**	0.02	-0.09	0.09	0.08	-0.03
Peers/Classmates	0.00	-0.11*	0.20**	0.34**	-0.14**	-0.23**	-0.17**	0.08	0.19
Father	-0.11*	-0.23**	0.37**	0.55**	-0.08	-0.17**	-0.17**	0.14*	0.28**
School	-0.14**	-0.17**	0.21**	0.20**	-0.27**	-0.21**	-0.30**	0.08	0.05
	<i>n</i> = 237	<i>n</i> = 249	<i>n</i> = 249	<i>n</i> = 249	<i>n</i> = 236	<i>n</i> = 236	<i>n</i> = 236	<i>n</i> = 169	<i>n</i> = 65
Boyfriend/Girlfriend	0.17**	0.08	-0.04	-0.11	0.10	0.00	0.11	-0.05	-0.20
	<i>n</i> = 314	<i>n</i> = 336	<i>n</i> = 336	<i>n</i> = 336	<i>n</i> = 318	<i>n</i> = 318	<i>n</i> = 318	<i>n</i> = 223	<i>n</i> = 95
Siblings	-0.12*	-0.24**	0.29**	0.38**	-0.08	-0.18**	-0.05	-0.01	0.25*

Note. ALC = Alcohol use, PROB = Problem behavior, PAR MON = Parental monitoring, POS FAM = Positive family relations, ATT = Attention problems, SAD = Sad, alone, depressed, DRUG ALC = Suspects drug and alcohol use, M-POS = Mother reports positive family relations, D-POS = Father reports positive family relations.

** = $p < 0.01$, * = $p < 0.05$.

Discussion

The factor structure of the Hemingway was highly similar to that reported by Karcher (2003) in regards to both the resultant factors and to the items loading on each factor. In addition to 11 items from Karcher's measure that failed to load or that cross-loaded in the present sample, there were three notable differences in the factor structure. First, in the present study connectedness to mothers and to parents loaded together rather than as separate factors. This may be due to the fact that Chilean youth are more satisfied with their relationships with their mothers, talk with their mothers more, and view their mothers as dedicating enough time to them (Herrera, 2007). This may also reflect other research findings that Chilean mothers are perceived as more caring and more involved with the family, while fathers may be perceived more as authority figures who establish rules but may be less involved emotionally with their children (Martinez et al., 2006; Olavarría, 2003). It may be that the items about connectedness to parents elicited responses to mothers, as they are more likely to express affective connections with their children. These family characteristics, however, are not unique to Chile and are certainly true of youth perceptions and experiences in the United States as well, so perhaps the combined loading of mother and parent items in the present study may be due in part to the number of youth (31%) who were living with only their mother in a single-parent household.

A second factor structure difference is that in the Chilean sample items for connectedness to self in the present and connectedness to self in the future loaded together rather than as separate factors. According to the research summarized by Martinez et al. (2006), Chilean adolescents view the development of a personal identity as very important to accomplishing life goals and the building of personal identity is associated with competence and future happiness. These authors further note that Chilean adolescents generally have high self-esteem, positive self-concepts, and optimistic future-oriented aspirations and expectations; they believe that persistence and hard work will lead to future accomplishments and that having a good job or career is a key to future well-being (Martinez et al., 2006). It may be that Chilean adolescents experience a greater sense of continuity and connection between their present and future or that they are more future-oriented than adolescents from the United States. Even among Chilean young people of lower SES, Palacios and Cárdenas (2009) reported that 94.5% agreed that "education is important for growth as a person" and 88.5% agreed that "having a good education helps achieve success in life."

The only other difference between Karcher's reported factor structure and the present results was that the item of connectedness to self in the present ("I really like who I am") loaded on the Classmates/peers subscale rather than the Self in the Present/future subscale. While this item had a relatively low loading (0.32), perhaps it reflects an important notion in peer relationships that, for some adolescents, self-acceptance may be based in part on external feedback, inclusion with, and acceptance from others. In part, youth may experience self-liking as a function of how much they like and are liked by their peers. This interpersonal dimension of the sense of self is clearly grounded in and supported by the research literature on adolescent development, belongingness, affiliation, and connectedness (Karcher, 2003; Saraví, 2009; Townsend & McWhirter, 2005).

The results of the correlation analyses between connectedness subscales and adolescent, parent, and teacher variables revealed some interesting relationships that are theoretically consistent. The results indicated that students reporting more problem behavior (including lying to parents, hitting or threatening someone at school, damaging property, and carrying weapons) were also less connected to their families (mother/parents, siblings, fathers), teachers, and schools, but were more connected to their neighborhoods. Resnick et al. (1997) found parent/family connectedness and school connectedness to be protective factors for adolescents of the United States in relation to their engagement in violence, substance use, sexual behavior, and emotional health. Karcher and Finn (2005) found that connectedness to parents decreased the likelihood of experimental smoking in rural adolescents. The pattern of correlations found in this investigation, in conjunction with existing literature on Chilean youth (e.g., Florenzano, 2002; Martinez et al., 2006; Santander et al., 2008), suggest that connectedness to family may be a strong protective factor in Chile and, as such, may be an important focus of prevention and intervention efforts.

Also consistent with the literature on risk and protective factors among youth in the United States and in other countries, students in this study who reported higher parental monitoring of their behavior were also more connected to their families (mother/parent, siblings, father), as well as to their religion, peers, teachers, and schools. Parental monitoring is widely regarded as a protective factor for adolescents, associated with lower rates of association with deviant peers, substance use, and problem behaviors (Dishion et al., 2008). In Chile, both mothers' and fathers' monitoring of their adolescents is associated with higher adolescent self-efficacy and achievement orientation, while parental punitiveness has been shown to have the opposite effect (Ingoldsby, Schvaneveldt, Supple, & Bush, 2005). Parent reports of enjoying time with their child were associated with higher connectedness to both parents, and for fathers, reports of enjoying time with the child was associated with higher connectedness to siblings. Parent enjoyment of time with their child was not associated with any other domains of connectedness. The strongest correlate of connectedness to self in the present/future was the adolescent's report of positive family relationships. These findings are all consistent with the importance and centrality of the family in the lives and well-being of Chilean adolescents (Herrera, 2007; Martinez et al., 2006).

Related to the finding on teacher's perceptions, students with lower connectedness to school, teachers, and peers were also more likely to be viewed by their teachers as having attention problems, being sad/alone, and to be suspected of drug and/or alcohol use. Karcher (2004) and Castro-Villarreal et al. (in press) described connectedness to school as an important element in school violence prevention. Connectedness to peers was more predictive of risk and protective factors than connectedness to friends. Perhaps this is because connectedness to friends defines friendship (if not connected, they would not be considered friends) whereas connectedness to peers in school is more variable. Chilean adolescents of lower SES are less likely to have friends in school and more likely to have friends in the neighborhood (Chile, Instituto Nacional de la Juventud, 2004; Martinez et al., 2006). Martinez et al. (2006) report that there has been little research conducted on peers and peer influences in Chile, and so this area merits further research attention. We were intrigued that connectedness to boyfriend/girlfriend was correlated only with alcohol use. This may simply reflect that both dating and alcohol use tend to increase with age.

Youth with higher connectedness to religion were less likely to be perceived as sad, alone, or depressed by their teachers, and were more likely to report positive family relationships. The majority of Chilean adolescents believe in God (95%), about 32% attend weekly church services, and about 20% of 15-18 year olds participate in religious groups (Martinez et al., 2006). A national survey indicated that about 17% of Chilean youth believe that religion is "very important" with another 29% indicating that it is "important", and only 14% indicated that religion is not at all important (compared with 29% of youth who thought that politics were not at all important; Baeza, 2007). This finding demonstrates both that teachers are able to notice which youth seem to be involved, engaged, and less depressed, and that their perceptions of students, in fact, match fairly well with adolescents' own reports of being engaged with family, church, and religion, all of which have been identified as protective factors in preventing risk and enhancing healthy outcomes for youth (McWhirter, McWhirter, McWhirter, & McWhirter, 2007).

Connectedness to reading and to different cultures was not strongly related to any of the correlates examined here. Questions related to different cultures are less relevant to the average Chilean adolescent, who tends to identify strongly nationally as Chilean but less to their different ethno-cultural roots. These questions may elicit different responses from youth in the south or north of Chile, where there is a much stronger indigenous presence. So, although these domains of connectedness may be worth exploring in future research, we recommend only using these subscales when questions of interest relate specifically to these constructs. This would be consistent with the work done by Karcher and Sass (2010), presented in their most recent 57 item version of the Hemingway with 10 subscales, based on a United States sample.

Overall, correlations between Hemingway subscales and the student, teacher, and parent constructs measured here suggest that connectedness is significantly associated with a variety of risk and protective factors among Chilean adolescents in a manner consistent with previous empirical findings. Internal consistency of the subscales was also moderate to strong. These findings provide initial support for the reliability and validity of the Hemingway as a measure of connectedness among Chilean youth. Martínez's (2007) review of adolescent development in Chile calls for increased attention to how daily life contexts shape the competencies and skills of adolescents, particularly those at risk. Adolescent ecologies include home, school, and neighborhood contexts that interact with individual characteristics and contribute to risk and resilience. She emphasizes that there is little research investigating the process and products of adolescents' connectedness with the social institutions around them, or of how those involvements promote their competencies. The Hemingway may be particularly useful in future research addressing the development of competencies among Chilean adolescents because of the multidimensional nature of connectedness and the centrality of connectedness to adolescent well-being, as supported by findings here. The measure may be useful in assessing the effectiveness of interventions designed to enhance adolescents' connectedness with their families, schools, and communities (Gómez, Muñoz, & Haz, 2007; Martínez, 2007). Moreover, current

efforts in Chile to support adolescent life-skills and vocational development may also benefit from greater attention to building and assessing connectedness (McWhirter & McWhirter, in press).

The present findings provide initial support for the utility and validity of the Hemingway in Chile. Overall, the pattern of significant and non-significant correlations is consistent with the theoretical underpinnings of the measure. Adolescents who experience greater connectedness and belonging within family and school are at lower risk for problem behaviors and are less likely to be perceived by their teachers as having emotional or attention problems. Parent enjoyment of time with their child is not a function of the child's connectedness in other domain areas but is related to the child's connectedness to the parents. The pattern of findings is also consistent with empirical literature on adolescent risk and protective factors both in the United States and in Chile. Relationships that would be predicted based on theoretical and empirical literature between the factor subscales and participant self-reports, teacher reports, and parent reports, were supported in the present study.

A limitation of the present study is that participants in this Catholic school sample may be more engaged in religious practices and have higher family involvement than adolescents in public or non-Catholic school settings. In order to increase confidence in the generalizability of the findings, the factor structure of the Hemingway should be investigated with Chilean students attending public and non-religious private schools. Additional future research on the measure also should include studies that concurrently test the factor structure and measurement invariance of the Hemingway across international samples. Such research is needed before comparisons of scores across cultures and national contexts can be reliably made (Castro-Villarreal et al., in press).

Findings from the present study suggest that the 57 items on the 11 factor structure, plus the nine items from two additional factors, constitute a 66-item, 13-factor *Hemingway Measure of Adolescent Connectedness* that is an effective measure of connectedness across numerous domains of Chilean adolescent life. The Hemingway may be a very useful instrument in future research focused on reducing risk and improving youth, family, school, and social well-being in Chile.

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Connectedness Among Taiwanese Middle School Students: A Validation Study of the Hemingway Measure of Adolescent Connectedness

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Theories of adolescent connectedness suggest that adolescents strive to become connected by engaging with and valuing the people, activities, and worlds in their social ecology. The purpose of this study was to examine the psychometric properties of a measure designed to assess these worlds of connectedness among 320 junior high school students in Taiwan. The subscales and composite scales evidenced satisfactory reliability and concurrent validity. A hypothesized three-factor, higher order structural model of connectedness was cross-validated. Girls were generally more connected than boys. Both connectedness to school and to friends explained more variance in connectedness to self than did family connectedness. There was mixed support for separation-individuation processes. The measure appears promising in terms of future research on adolescent social development in the Asia Pacific.

The problem of alienation and disconnection among youth has become the focus of international attention. When Joo and Han (2000) interviewed Korean adolescents to investigate the characteristics that contributed to alienation and disconnection, they found that alienated students reported low self-confidence, greater sensitivity to criticisms made by their peers, and a general disconnection from the activities and people in their schools. They suggested that alienated students "lack social skills, have difficulties in relationships, and are highly defensive and are caught up in their own world" (p. 127). Although several of the alienated students in their study reported trying to become better connected to their peers, teachers, and friends, Joo and Han suggest that school staff should help promote their students' connectedness.

To help educators in the Asia Pacific nations in these efforts, this paper describes and examines the

usefulness of a measure of adolescent connectedness. The measure is based on an ecological theory of adolescent connectedness (Karcher, 2001), which suggests that during adolescence youth seek to maintain both their unconventional, or peer-mediated connectedness to friends, and simultaneously to maintain their conventional, or adult-mediated connectedness to school, teachers, and family. The theory holds that during adolescence youth develop connectedness to two aspects of their nascent self, a self-in-the-present and a self-in-the-future. Through this process of identity development, youth strive to strengthen their connectedness, beyond the family, to both present-oriented social worlds and future-oriented academic worlds. These connections may be even more important among youth in Asian cultures than in the U.S. because for such youth there appear to be stronger distinctions between family and non-family relations and a heightened importance of understanding oneself in the context of others (Asakawa & Csikszentmihalyi, 2000; Bush, 2000; Markus & Kitayama, 1991; Rothbaum, Pott, Azuma, Miyake, & Weisz, 2000). Therefore, examining the components of connectedness among Asian youth and establishing the reliability and validity of a measure of adolescent connectedness could facilitate counselors',

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teachers', and principals' efforts to direct prevention efforts and to provide counseling interventions to their most alienated and disconnected students.

The Role of Belonging and Relatedness in Shaping Adolescent Connectedness

It has been argued that establishing and maintaining connectedness to others, to society, and to oneself is a pervasive human concern (Baumeister and Leary, 1995; Gilligan, 1982; Hagerty, Lynch-Sauer, Patusky, and Bouwsema, 1993; Kohut, 1977; Nakkula & Selman, 1991). Twenty-five years after Maslow (1968) described belongingness as the third most fundamental need of the self, Baumeister and Leary (1995) proposed that belongingness is perhaps the most important psychological resource for overall human well being. They describe the need to belong as the universal need for "frequent activity and persistent caring" (Baumeister & Leary, 1995, p. 497). Thus their definition of connectedness is based on contact and caring. Lee and Robbins (1995) describe connectedness as one of the three components of belongingness, the other two being companionship and affiliation.

Formal definitions of an ecology of adolescent connectedness have been lacking in the psychological literature, yet research on belongingness and relatedness suggests that connectedness is shaped both by feelings of general belongingness and by assessments of context-specific and person-specific interpersonal relatedness. Hagerty et al. (1993) describe connectedness as one of the four states of relatedness, suggesting connectedness occurs when a person is fully involved with another person, activity, group, or environment.

Although connectedness has frequently been used as a synonym for relatedness and belonging, connectedness is commonly described in the literature as distinct from these terms in at least three ways. First, belongingness is a self-assessment of the degree of social support one experiences in general or in social groups, and relatedness is one's assessment of the interpersonal social support one experiences in specific relationships, whereas connectedness conveys the individual's involvement in and caring for those relationships and groups.

Within the theory of adolescent connectedness (Karcher, 2001), connectedness is described as movement towards

others through affection and activity. Connectedness is considered a response to relatedness and belonging. When individuals feel a sense of relatedness to others and belonging in general they, in turn, value those relationships and social institutions in which they experience belongingness and relatedness. They pursue activities and relationships which further cement their affective commitment. Connectedness, then, reflects one's perception of his or her own involvement in and affection for others, activities, and organizations.

A second distinction found in the literature is that connectedness refers to involvement not only in dyadic relationships and groups, but also in activities, abstractions, and ideologies that reflect individuals' social memberships or affiliations. For example, descriptions of connectedness to reading, to religion, and to the future are also found in the child and adolescent literature (see Feral, 1999; Nakkula & Selman, 1991).

The third distinction is that connectedness is a function of the need to belong, such that when belonging and relatedness is not experienced by an individual in one social ecology, he or she will become more connected to other social ecologies as a compensatory act (Baumeister & Leary, 1995). For example, when disconnection occurs with family members, connectedness with friends may increase; when adolescents become disconnected from school, they often seek connectedness outside of school in their neighborhood (see Joo & Han, 2000; Hirschi, 1969). Therefore, it is often suggested that adolescents' sense of self is born out of these sometimes divergent connections to family, teachers, friends and peers (Buhrmester, 1990; Harter, 1999).

The Consequences of Connectedness

It has been argued that promoting connectedness should be a goal of parents and educators because youth who report greater connectedness tend to be psychologically happier, physically healthier, and generally better able to cope with the stresses of everyday life (Baumeister & Leary, 1995; Joo & Han, 2000, Lee & Robbins, 1995, 1998). Conversely, studies among U.S., Scottish, and Korean youth, as well as Asian-American adolescents, repeatedly find that youth reporting less connectedness also report more psychological

difficulties and poorer physical health (Asakawa & Csikszentmihalyi, 2000; Hendry & Reid, 2000; Lee & Davis, 2000; Roth & Brooks-Gunn, 2001). The literature linking connectedness to unhappiness, depression, and anxiety (e.g., Bonny, Britto, Klostermann, Hornung, & Slap, 2000; Resnick, Harris, & Blum, 1993) as well as to academic achievement is growing in the U.S. and elsewhere, and it highlights the importance of connectedness in adolescent development (Bonny, Britto, Klostermann, & Slap, 1999; Cooper, 1999; Joo & Han, 2000; Kuperminc, Blatt, & Leadbeater, 1997).

Separation and Individuation Processes as Indications of Changes in Connectedness

Adolescence poses both opportunities and threats to the maintenance of connectedness. During adolescence, specifically in the junior high years, youth undergo developmental transitions, including pubertal changes, new psychosocial roles, and cognitive developments that result in the emergence of a sense of self that is born out of their unique relationships with family members, teachers, and friends (Erikson, 1950; Harter, 1999). Adolescents' self-esteem in these contexts informs their connectedness to self. The ability to think abstractly results in the development of both a present self and a future self (Harter, 1999). Yet, the psychosocial correlation of connectedness to self among Asia Pacific youth has received little attention (Asakawa & Csikszentmihalyi, 2000; Markus & Kitayama, 1991; Tafarodi & Lang, 1999). This is likely a function of disagreements about the importance and validity of constructs like individualism and self-esteem in collectivist cultures.

There is some debate about whether Asian youth undergo similar processes of self-development, and specifically whether they undergo a separation-individuation process like youth in the U.S. (Stewart, Bond, Deeds, & Chung, 1999; Yamamoto, 1989). In Western psychology it has long been assumed that adolescents undergo a separation-individuation process in which they shift from dependence on conventional (parent-mediated) relationships to greater independence from parents (Blos, 1962; Muuss, 1996). It has been reported that connectedness with parents and peers in the U.S. wanes with the onset of adolescence,

while connectedness to friends and to self increases (Buhrmester, 1990; Harter, 1999; Ryan, Stiller, & Lynch, 1994; Youniss & Ketterlinus, 1987). This separation from parents and increased connection to friends has been viewed in the West as the extension of youths' primary attachments to caregivers toward new significant others in the lives of adolescents (Ainsworth, 1989). Others have argued that connectedness to parents changes, not by diminishing but rather by being transformed to a new level of maturity (Cooper, 1999; Grotevant & Cooper, 1998). Whether or not the same processes of separation and individuation occur in collectivist cultures remains unclear (Stewart, Bond, Deeds, & Chung, 1999).

Variations in Connectedness Between Sexes

Gender differences have received the greatest attention within the research on connectedness. The proposition that girls report greater relatedness and belonging than boys has received much attention (Lang-Takac & Osterweil, 1992; Tolman, Diekmann, & McCartney, 1989), but empirical studies with validated measures of belonging and relatedness fail to consistently reveal clear gender differences (Hagerty et al., 1993; Harter, Waters, Pettitt, Kofkin, & Jordan, 1997; Jacobson & Rowe, 1999; Lee, Keough, & Seagal, 1999; Lee & Robbins, 1995). Little cross-cultural work has been done on this issue (see King, Akiyama, & Elling, 1996; Yamamoto, 1989). Yet, because both U.S. and most Asian countries are patriarchal, Asia Pacific girls, like U.S. girls, are likely socialized to care more about and be more involved in relationships than are boys.

Ecological Contributions to Youths' Connectedness to Self

A number of scholars argue that the Western view of self emphasizes separateness, autonomy, independence, individualism, and distinctness; whereas most non-Western societies have adopted a more socio-centric, collectivistic, connected, and interdependent construal of self. Research on the values associated with Eastern collectivism as

compared to Western individualism suggests that connectedness processes are more culturally salient for youth in the East than in the West (Anant, 1969; Asakawa & Csikszentmihalyi, 2000; Bush, 2000; Markus & Kitayama, 1991). For example, in Taiwan people tend to possess an interdependent self-concept (Markus & Kitayama, 1991). Greater emphasis is placed there than in the U.S. on family harmony, respect, and obedience to authorities (Cooper, 1999). In the tradition of filial piety, adolescents are expected to show respect and reticence with elders more than to express their personal opinions. These family values are also reflected in patterns of communicating and negotiating individuality and connectedness during adolescence (Bush, 2000; Cooper, 1999). These different self-concepts should result in differences in the types of connectedness that explain connectedness to self (Rothbaum, Morelli, Pott, & Liu-Constant, 2000). For example, although in the U.S. it appears that connectedness to friends and to school tend to be the best predictors of self-esteem and identity development (Karcher, 2001; Dubois, Felner, Brand, Phillips, & Lease, 1996), it is often argued that for adolescents in collectivist cultures, connectedness to family may be a more important contributor than peer and academic factors to self-esteem and identity development (Watkins & Dong, 1994). Yet, if Asian youth' undergo a similar separation-individuation process to that of youth in the West, then Asian youths' connectedness to friends and to school may make greater contributions to their connectedness to self than have been reported in prior research.

Summary of the Need for Reliable and Validated Measures of Connectedness

Considerable research on collectivism reveals that connectedness is an important construct in the Asia Pacific nations. Based on the role of affect and physical proximity in attachment processes (Ainsworth, 1989) and a literature review on belonging by Baumeister and Leary (1995), we defined connectedness as active engagement and affection for people and places in adolescents' social ecology. However, this definition has grown out of the literature on youth in the United States, and little is known about connectedness in Asia Pacific nations like China and Korea. Specifically,

patterns of separation-individuation have not been explored, gender differences in connectedness are unclear, and the social and ecological contributions to connectedness to self have been relatively unexamined among youth in the Asia Pacific nations. A more clear understanding of these phenomena may help U.S. and Asia Pacific researchers and educators better understand and translate findings from one culture to the other.

However, we know of no measures of adolescent connectedness that are currently or readily available to educators. There exist measures of attachment for adolescents (Armsden, McCauley, Greenberg, Burk, & Mitchell, 1990) and measures of belonging and relatedness for young adults (Hagerty, et al., 1993; Lee & Robbins, 1995). However, most research on adolescent connectedness has either used (renamed) subscales from other measures (e.g., Kuperminc, Blatt, & Ledbeater, 1997; Youniss & Ketterlinus, 1987), ad hoc measures from large scale survey research (Hodges, Finnegan, & Perry, 1999; Jacobson & Rowe, 1999), or qualitative data and interviews (Hendry & Reid, 2000; Joo & Han, 2000) to assess connectedness. This diversity of measurements complicates the integration of findings.

The present study examines the reliability, validity, and correlates of a U.S. measure of adolescent connectedness with Taiwanese middle school students. This measure of adolescent connectedness was chosen (Karcher, 1999) because it appeared to be culturally compatible with Joo and Han's (2000) description of the factors related to adolescent alienation in collectivist cultures. Joo and Han suggest that alienated students report less positive engagement in their social environment, less interest in school-related activities (like reading), lower self-esteem, and less peer, teacher, and family involvement. The Hemingway Measure of Adolescent Connectedness is based on an ecological framework that includes these social, institutional, and self domains. The measure captures aspects of attachment processes (Ainsworth, 1989) and belonging (Baumeister & Leary, 1995) by measuring caring and involvement in close relationships and important contexts, and it provides measurements of different types of connectedness across the adolescent's widening social ecology. Finally, this measure was chosen because it has been rigorously studied with samples from the West. The measure was developed through factor analyses, which allowed us to compare the structure of adolescent

connectedness found among the U.S. youth with Asia Pacific youth.

The present study attempted to estimate the reliability and validity of the Hemingway scale with Taiwanese middle school youth, to cross-validate the structure of adolescent connectedness reported by U.S. youth with an Asia Pacific sample, and to test three hypotheses about adolescent connectedness based on research with U.S. samples. First, it was hypothesized that Taiwanese youth would also demonstrate separation-individuation processes, with increased connectedness to friends and to self between early and late middle school and decreased connectedness to their mothers, fathers, and peers. Second, it was hypothesized that connectedness to friends and school would correlate as strongly with connectedness to self as would connectedness to family. Third, sex differences were anticipated with girls reporting greater connectedness than boys.

Method

Design

This study used cross-sectional, single wave survey data. In the first set of analyses, the measure's reliability was assessed using Cronbach's alpha and item-total correlations. Special attention was paid to items that appeared more relevant to Western than to Asian adolescents on the basis of cultural differences described above, such as filial piety (i.e., reverence for elders) and collectivistic attention to relationships and contexts. Concurrent and divergent validity were estimated using a multitrait correlation matrix that included connectedness composite scales and corresponding self-esteem scales. Structural equation modeling was used to conduct a confirmatory factor analysis of the connectedness subscales.

The second set of analyses used analyses of variance and correlations to test three hypotheses about factors contributing to adolescent self-development, the prevalence of separation-individuation during junior high, and gender differences among Taiwanese adolescents. First, to estimate the relative contributions of connectedness to friends, family, and school in explaining self-development among Taiwanese youth, we examined the correlations between these composite scales and the connectedness to self composite

scale. Second, to determine if changes in social connectedness during junior high reveal the presence of separation-individuation processes among Taiwanese youth, we examined the mean levels of connectedness between grades 7 and 9. Third, we tested the hypothesis that females would report higher mean levels of connectedness than males.

Participants

Three hundred and twenty-two students (159 males, 150 females, and 13 unknown sex) participated in the study. These participants were selected from a junior high school in central Taiwan in which we selected three homerooms from each grade to participate in the study.

Before computing subscale means, 13 of the subjects were excluded because they presented dubious response patterns or answered less than 75% of the questions in the measure. As a result, 309 subjects (150 males; 146 females; 13 unknown) were included in the study. One hundred and two (47 males; 42 females; 13 gender unknown) were in 9th grade, 98 (53 males; 45 females) in 8th grade, and 109 (50 males; 59 females) in 7th grade.

Measures

The Hemingway: Measure of Adolescent Connectedness (MAC 4th version; Karcher, 1999). The Hemingway: Measure of Adolescent Connectedness (MAC) consists of 74 items designed to measure the adolescents' degree of caring for and involvement in fifteen relationships and institutional contexts. The MAC includes subscales of 15 ecological worlds and four composite scales. Responses to each of the items are made using a five-point, Likert-type response scale which ranges from (1) not true at all, (2) not really true, (3) sort of true, (4) true, to (5) very true. There is at least one reverse scored item in each scale. The items within each of the 15 worlds are averaged to get separate subscale mean scores.

The four composite scales reflect the mean of all subscale items in each of four domains: Family (parents and sibling items), Friends (friends and neighborhood items), School (school and teacher items), and Self (present and future self items).

Three underlying factors or subscale groupings have been found in multiple adolescent samples in the U.S. (Karcher, 2001). These are social connectedness, academic connectedness, and family connectedness.

The *Social Connectedness Factor* includes connectedness to friends, the neighborhood, a self-in-the-present, and reactions to disconnection (how one deals with rejection and criticism). The *Connectedness to Friends* subscale measures the extent to which an adolescent feels close to and spends time with friends in activities such as talking about personal concerns. The *Connectedness to Neighborhood* subscale measures the degree to which adolescents spend time playing with others in their neighborhoods. The *Connectedness to a Self-in-the-Present* subscale measures self-esteem and identity development. Adolescents with high scores on this subscale describe themselves as having unique abilities and skills that are liked by others. The *Reaction to Disconnection* subscale measures the degree to which adolescents have strong, specifically angry, reactions to rejection and criticism from others. All three items are reverse scored, such that higher scores reflect feeling less anger in response to rejection and criticism.

The *Academic Connectedness Factor* includes connectedness to school, teachers, peers, culturally different peers, reading, and self-in-the-future. The *Connectedness to School* subscale measures how positively youth feel about school, how hard they report working in school, and how school makes them feel about themselves. The *Connectedness to Teachers* subscale measures adolescents' efforts to get along with their teachers and their concerns about earning their teachers' respect and trust. The *Connectedness to Peers* subscale measures the extent to which adolescents feel drawn to and cooperative with their peers. The *Connectedness to Culturally-Different Youth* subscale measures the extent to which adolescents are interested in getting to know youth from different cultures. The *Connectedness to Reading* subscale measures the degree to which adolescents enjoy reading by themselves. It is supposed to tap into adolescents' "ability to be alone, to escape into a world of their choice" (Karcher, 1999, p. 12). The *Connectedness to Self-in-the-Future* subscale measures both the youth's beliefs about succeeding in the future and his or her efforts to secure a positive future.

The *Family Connectedness Factor* includes the connectedness to parents, siblings, mother, father, and religion/ancestors subscales. The *Connectedness to Parents* subscale measures how much adolescents spend time with their parents and enjoy being with them. The

Connectedness to Siblings subscale reflects adolescents' feelings of closeness to and involvement with their siblings. The *Connectedness to Father* and *Connectedness to Mother* subscales measure the degree to which adolescents feel comfortable spending time with and feel valued by their fathers and mothers. Therefore, these scales are similar to other measures of relatedness (Hagerty et al., 1993) and adolescent attachment (Armsden et al., 1993). The items on both subscales are the same. The *Connectedness to Religion/Ancestors* subscale describes how involved in religious practices adolescents are and how much they value their religion or ancestors.

The subscales in each of these three factors can be characterized in terms of temporality, conventionality, and ways of connecting. The items in each of the subscales reflect a balance of items reflecting the two primary ways of connecting-through activity or involvement and through caring (e.g., "I work hard at school." and "I enjoy being at school."). Subscales reflect a time orientation. The social and family subscales are generally present-oriented, and the academic subscales are typically future-oriented. Finally, subscale worlds may either reflect conventional, adult-mediated behaviors and attitudes (e.g., school and family subscales) or unconventional behaviors and attitudes (e.g., friends, neighborhood, and self-in-the-present subscales) which reflect youth-directed behaviors and youth-specific attitudes (Jessor, 1993).

Self-Esteem Questionnaire (SEQ; Dubois et al., 1996). Four of six self-esteem scales from the SEQ were chosen for study which parallel the connectedness composite scales of school, family, friends, and self. With U.S. samples the SEQ has demonstrated good multitrait-multimethod validity and good test-retest and inter-item reliability (Dubois et al., 1996). Reliability estimates in the current study ranged from .66 to .84.

Procedures

Chinese versions of both the MAC and Self-Esteem Questionnaire were developed using the translation-back-translation method (Van de Vijver & Leung, 1997). First, the second author translated the MAC items into Chinese. Each item was discussed with two Taiwanese teachers to determine the proper wording. Once the translation was done, a third colleague in Taiwan translated it back into English. The authors discussed the items that were not well translated and modified them.

Finally, all items were sorted into their 15 scale worlds by an English-speaking colleague to ensure they reflected the same concepts as the original measures ($\kappa = .83$). Prior to data collection, the measures and assessment procedures were reviewed by a committee at the school in Taiwan and by the School of Education Human Subjects Committee at a U.S. University. The Human Subjects Committee allowed the junior high school principal in Taiwan to provide consent for youth to participate in order to respect and work within the culture of school-based research in Taiwan in which parental consent is typically given by school administrators. Two teachers in the junior high school volunteered to administer and collect all the measures during class periods on a day in the Fall. They described the measure, the purpose of the study, and explained that providing the subjects' name was optional. They asked the students to report their grade and gender. The teachers remained available at all times to explain individual items and answer questions. No students reported difficulty in understanding items.

The Statistical Package for Social Scientists version 10 (SPSS, Chicago, IL) was used for correlational and factorial analyses. To calculate the inter-item reliability, Cronbach's alpha was selected because it constitutes "only rule-of-thumb procedure for deciding whether a group of items should be added together to form a scale" (Robinson, Shaver, & Wrightsman, 1991, p.10). A zero-order correlation matrix was used to estimate convergent and divergent validity (Campbell & Fiske, 1959). EQS version 5.7b (Bentler & Wu, 1995) was used in the structural equation modeling for the confirmatory factor analysis.

Results

Estimating Subscale Reliability and Convergent Validity

The first study presents evidence of the reliability and validity of the *Hemingway: Measure of Adolescent Connectedness* (MAC) subscales and composite scales. Keeping in mind that reliability varies as a function of the scores reported by a specific population, we examined reliability estimates to determine the degree to which the MAC reliably measured the constructs theorized to reflect adolescent connectedness among

Taiwanese junior high students. Most researchers concur that, when estimates of inter-item reliability, specifically Cronbach's alpha coefficient (α), are greater than .70, scale reliability is adequate (Heppner, Kivlighan, & Wampold, 1999). For the present study we relied on a more differentiated and conservative set of criteria by Robinson, Shaver, & Wrightsman (1991), who propose that for self-report psychological questionnaires $\alpha > .80$ is *exemplary*; $\alpha .79 \leq .70$, is *extensive*; $\alpha .69 \leq .60$ is *moderate*; and $\alpha < .60$ is *minimal*. Because the goal of this study was to estimate the general reliability of a measure among a new population, we considered adequate only those scales that had exemplary, extensive, or moderate reliability.

Scales Demonstrating Exemplary Reliability

All three composite scales for connectedness to school, family, and self reflected exemplary inter-item reliability (see Table 2), as did the subscales of connectedness to siblings, reading, and other cultures. All six of these scales were highly reliable for this population, and are described in order of their presentation in Table 1.

The *Connectedness to Culturally-Different Youth* subscale had the highest total mean ($M = 3.90$) and was most strongly correlated with connectedness to friends and to self (social factor, unconventional), as well as to peers and to teachers (academic factor, conventional)(see Table 3), thus reflecting both conventional and unconventional connections.

The *Connectedness to Siblings* subscale had consistently high inter-item correlations, the highest reliability of the 15 subscales, and its validity was supported by high correlations with the parents, mother, and father subscales (see Table 3).

The *Connectedness to Reading* subscale demonstrated high correlations with the other conventional, academic connectedness subscales of teachers, school, and future self, suggesting good convergent validity. All of the items had high correlations with the total subscale except for the item, "For fun I read on my own at least once a week". This suggests that in this sample, this subscale probably did not measure youths tendency to read on their own for pleasure.

Three of the four composite scales had exemplary reliability: *Connectedness to Self Composite*, to *School*

Table 1. Descriptive Statistics, Reliability, Univariate F-tests, and Effect Size Estimates for Connectedness Subscale Differences by Sex

Scale	Alpha	Total		Girls		Boys		F	d
		Mean	SD	Mean	SD	Mean	SD		
Other cultures	.83	3.90	.90	4.07	.88	3.74	.90	10.64****	.37
Peers	.63	3.87	.56	4.00	.51	3.75	.58	15.18****	.46
Parents	.76	3.84	.73	3.92	.71	3.77	.75	3.89*	.21
Friends	.77	3.81	.70	3.91	.69	3.71	.68	5.83**	.29
Teachers	.72	3.70	.74	3.84	.65	3.55	.80	11.97****	.36
Mother	.68	3.69	.90	3.76	.82	3.62	.97	1.95+	.16
Future Self	.66	3.53	.69	3.63	.62	3.42	.75	6.84**	.31
Present Self	.78	3.53	.72	3.56	.70	3.49	.74	.78	.10
School (only)	.75	3.40	.71	3.53	.62	3.27	.77	10.07****	.37
Father	.79	3.38	.87	3.35	.91	3.4	.83	.23	.06
Siblings	.90	3.38	.93	3.45	.92	3.31	.93	1.80	.16
Reading	.81	3.34	.85	3.57	.79	3.10	.84	24.48****	.58
Neighborhood	.63	3.19	.73	3.21	.69	3.17	.76	.19	.06
Disconnection	.72	2.58	.91	2.47	.85	2.68	.96	3.93*	.23
Ancestors	.74	2.47	1.01	2.48	1.00	2.45	1.02	.05	.03

Note. Scales are ordered by size of total means.
 +p < .10, * p < .05, ** p < .01, **** p < .001

Table 2. Convergent/divergent Validity Correlation Matrix with Means and Standard Deviations for Self-Esteem and Connectedness Composite Scales by Sex

	Self-Esteem Questionnaire (SEQ)				Measure of Adolescent Connectedness (MAC)			
	School	Family	Friends	Self	School	Family	Friends	Self
SEQ _ School	($\alpha = .76$)	.46	.35	.55				
SEQ _ Family	.47	($\alpha = .84$)	.40	.51				
SEQ _ Friend	.52	.41	($\alpha = .82$)		.48			
SEQ _ Self	.58	.35	.59	($\alpha = .66$)				
MAC _ School	.61	.40	.52	.31	($\alpha = .80$)	.40	.34	.49
MAC _ Family	.41	.66	.39	.29	.55	($\alpha = .89$)	.14 ^{ns}	.36
MAC _ Friends	.14**	.07 ^{ns}	.53	.18**	.38	.33	($\alpha = .77$)	.40
MAC _ Self	.55	.34	.66	.52	.63	.47	.57	($\alpha = .81$)
Mean	3.09	3.36	3.59	3.74	3.52	3.61	3.80	3.52
SD	.63	.57	.70	.62	.62	.74	.70	.62
No. of items	7	7	8	7	9	10	6	10

Notes. SEQ = self-esteem questionnaire; MAC = measure of adolescent connectedness. Correlations in bold reflect convergent validity; correlations in italics reflect divergent validity. Correlations for scales are listed by sex: girls above diagonal and boys below. Composite scale reliabilities are listed in diagonal. ** p < .01. ns = nonsignificant. All correlations greater than .19, p < .001.

Table 3. Partial Correlations Between Hemingway Subscales for Boys and Girls

MAC Scale	Hemingway: Measure of Adolescent Connectedness (MAC)														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Cultures	—	.13 ^{ns}	.21 ^{**}	.42	.32	.28	.36	.33	.35	.10 ^{ns}	.23 ^{***}	.29	.32	-.26	-.23 ^{**}
2. Peers	.55	—	.26 ^{***}	.35	.43	.19 [*]	.26 ^{***}	.34	.51	.16 ⁺	.13 ^{ns}	.10 ^{ns}	.08 ^{ns}	.04 ^{ns}	-.17 [*]
3. Parents	.39	.49	—	.10 ^{ns}	.19 [*]	.76	.26	.33	.42	.72	.55	.26	.23 ^{***}	.06 ^{ns}	.14 ⁺
4. Friends	.40	.39	.26 ^{***}	—	.36	.15 ⁺	.25 ^{***}	.41	.24 ^{***}	.06 ^{ns}	.12 ^{ns}	.08 ^{ns}	.20 [*]	-.30	.08 ^{ns}
5. Teachers	.42	.46	.46	.39	—	.10 ^{ns}	.45	.29	.49	.06 ^{ns}	.17 [*]	.24 ^{***}	.07 ^{ns}	-.13 ^{ns}	-.01 ^{ns}
6. Mother	.23 ^{***}	.27	.59	.16 ⁺	.35	—	.21 ^{**}	.32	.28	.73	.52	.31	.30	.00 ^{ns}	.19 [*]
7. Future Self	.42	.45	.46	.47	.60	.32	—	.50	.44	.11 ^{ns}	.16 ⁺	.33	.15 ⁺	-.15 ⁺	.06 ^{ns}
8. Present Self	.38	.36	.35	.54	.50	.28	.58	—	.37	.30	.29	.27	.33	-.09 ^{ns}	.18 [*]
9. School	.30	.50	.44	.27	.49	.26	.57	.37	—	.24 ^{***}	.41	.35	.17 [*]	.01 [*]	.06 ^{ns}
10. Father	.29	.34	.63	.04 ^{ns}	.38	.53	.28	.23 ^{***}	.40	—	.47	.11 ^{ns}	.29	.03 ^{ns}	.14 ⁺
11. Siblings	.21 [*]	.32	.65	.32	.41	.55	.39	.33	.40	.52	—	.30	.25 ^{***}	-.03 ^{ns}	.12 ^{ns}
12. Reading	.37	.44	.34	.27	.52	.18 [*]	.42	.27	.52	.23 ^{***}	.23 ^{***}	—	.19 [*]	.17 [*]	.08 ^{ns}
13. Neighbors	.25 ^{***}	.19 [*]	.18 [*]	.22 ^{**}	.27	.13 ^{ns}	.29	.34	.10 ^{ns}	.05 ^{ns}	.17 [*]	.07 ^{ns}	—	.04 ^{ns}	.05 ^{ns}
14. Disconn.	-.16 [*]	.09 ^{ns}	.05 ^{ns}	.00 ^{ns}	-.31	-.06 ^{ns}	.01 ^{ns}	-.11 ^{ns}	.03 ^{ns}	-.10 ^{ns}	.00 ^{ns}	-.08 ^{ns}	-.07 ^{ns}	—	-.21 ^{**}
15. Ancestors	.20 ^{**}	.15 ⁺	.26	.10 ^{ns}	.42	.28	.35	.28	.27	.38	.25 ^{***}	.22 ^{**}	.11 ^{ns}	-.17 [*]	—

Note. Partial correlations (partialling variance explained by grade) for boys are in the bottom diagonal and for girls in the top diagonal. ^{ns}p > .10, +p < .10, * p < .05, ** p < .01, *** p < .005, no sign if p < .001

Composite, and to Family Composite scales. No single item threatened the reliability of any of these composite scales, suggesting each composite scale reflected a single, uni-dimensional construct.

Scales Demonstrating Extensive Reliability

The Connectedness to Parents subscale correlated most highly with the connectedness to mother and father subscales, suggesting good convergent validity. The items about youth wanting their parents to "be proud" and to "trust" them had the lowest correlations with the other items (r = .33; .43 respectively), suggesting that this scale more reflected the phenomena of spending time with parents.

The Connectedness to Friends subscale had high inter-item correlations. As found in U.S. samples, connectedness to friends correlated most strongly with connectedness to self-in-the-present. However, unlike the U.S. samples (Karcher, 2001), the next strongest relationships were with connectedness to a

self-in-the-future, to teachers, and to peers. The two lowest item means were for "My friends and I talk about personal things that are important to us" and "My friends and I spend a lot of time talking about things". This suggests that talking about personal matters is not as central to Taiwanese connectedness to friends as it is among youth in the U.S.

The Connectedness to Teachers subscale was more highly correlated with other school scales like reading, school, and peers, than with family subscales, especially for girls. Only for boys was there a strong relationship between teachers and parents and specifically with connectedness to father (see Table 3). Thus, evidence of a transfer of attachment from parents to teachers was more pronounced for boys than for girls.

The Connectedness to Father and Connectedness to Mother subscales differed in their reliability. The reliability for the father scale (.79) was much higher than the mother scale (.68). "My mother and I are pretty close" had the lowest item-total correlation (r = .28) for the mother scale, and "My father and I argue a lot" had the lowest item-total correlation (r = .24) for

the father scale. These low item means suggest that closeness with mother is underrated in Taiwanese adolescents' connectedness to mother, and disagreement is less central in connectedness to father than in connectedness to mother.

The *Connectedness to a Self-in-the-Present subscale* demonstrated extensive reliability and if any items were deleted, the subscale would have measured this construct less reliably. Yet, the means of two items, "I can name 5 things that my friends like about me" and "I can name 3 things that other kids like about me", were lower than other item means. Perhaps Taiwanese adolescents do not easily discuss the characteristics that make them feel good about themselves, or they experience some shame in saying that they can identify such facts. Nevertheless, this appears to be a valid scale for Taiwanese youth.

Although the *Connectedness to Religion/Ancestors* subscale demonstrated high reliability, and the coefficient would not have increased if any of the items were deleted, there are reasons to question its validity. Despite strong correlations with connectedness to mother, father, and self-in-the-future, this subscale might not be valid for Taiwanese adolescents, which may explain why it has the lowest subscale mean (see Table 1). Taiwanese likely experience spirituality quite differently than teens in the U.S. For example, many Taiwanese teens may believe in respecting their ancestors, but not experience this as a "religion." Additionally, religious services in Taiwan are seldom required once a month or once a week (asked in one item), like church and synagogue services.

The *Reaction to Disconnection* subscale was sufficiently reliable but demonstrated no convergent validity. The correlations suggest this scale may tap into defensiveness, and do not support its role as one component of the social connectedness factor. Only for girls did this scale correlate with connectedness to friends, and it did so negatively. For boys, reporting that one did not experience anger in response to criticism and disconnection predicted greater disconnection from teachers and from culturally different youth.

Scales Demonstrating Moderate Reliability

The *Connectedness to Self-in-the-Future* subscale was supported by strong correlations with connectedness to

teachers, school, and self-in-the-present. Yet item means suggest that academic success is more heavily emphasized as a means toward a successful future than are other activities in school. The mean for "Doing well in school will help me get the things I want out of life" was very high; yet the mean for "I do lots of things in school to prepare for my future" was low. This highlights the importance of academic success in Taiwanese youths' sense of self-in-the-future.

The *Connectedness to Neighborhood* subscale was least reliable and the coefficient alpha would not change much if any of the items were deleted. The item, "I hang out a lot with kids in my neighborhood", had the highest correlation with the other five items suggesting this subscale is about playing with other kids outside school or home, which implies unconventional, peer-mediated behavior. However, this subscale also correlated with the conventional school subscales, but only for girls, suggesting that connectedness to neighborhood may reflect a different phenomenon for the two sexes. Another reason why this subscale may not reflect solely the unconventional phenomenon of playing with friends in the neighborhood after school—a common practice in the U.S.—is its high correlation with the family subscales.

The *Connectedness to Peers* subscale reliability was the lowest among all of the subscales, which may reflect its inclusion of two negatively worded items which had low item-total correlations with (.23 to .25) and higher mean scores than the other three items. To better understand the low inter-item correlations among the peer items, a factor analysis using maximum likelihood estimation was conducted. It revealed one factor that included the three positively worded items about enjoying working with, liking, and getting along with peers. The items asking if their peers bothered them or if they fought with their peers were unrelated to this factor. Yet the reliability of all five items together was better than if any single item was removed. The peers scale did correlate highly with connectedness to school, teachers and friends, suggesting good convergent validity.

Convergent Validity Estimates for the Composite Scales

Following procedures suggested by Campbell & Fiske (1959), a multitrait zero-order correlation matrix was

Table 4. Goodness of Fit Indices of the Hypothesized and Two Alternative Confirmatory Factor Analysis Models of Adolescent Connectedness (N = 297)

Goodness of Fit Indices	Confirmatory Factor Analysis Models		
	Hypothesized Model		Alternative Models
	Higher Order (df = 51)	One-Factor (df = 55)	3-Factor (df = 47)
χ^2 (χ^2/df)	110 (2.16)		418 (7.6) 255 (5.42)
CFI (GFI)	.954 (.944)		.720 (.740) .839 (.876)
NFI (NNFI)	.919 (.941)		.693 (.664) .813 (.775)
RMSEA (95% Confidence Interval)	.064 (.047 - .080)		.151 (.137 - .164) .124 (.109 - .139)

Notes. NFI = Bentler-Bonett normed fit index; NNFI = Bentler-Bonett nonnormed fit index; CFI = comparative fit index; GFI = goodness-of Fit Index; RMSEA = Root-mean-square error of approximation.

used to estimate convergent and divergent validity between the connectedness composite scales and matching self-esteem subscales. Convergent validity is indicated when a trait correlates more highly with similar traits than with dissimilar traits. Divergent or discriminant validity is present when it is clear that scales do not correlate highly with traits from which they are intended to differ. In Table 2 three of the four ecologically specific composite scales were most strongly related to their respective self-esteem scales. The school-based self-esteem, family-based self-esteem, and self-based self-esteem scales each correlated more strongly with the connectedness composite scales in their respective domain than with the other connectedness composite scales. However, the friend-based self-esteem scale was more highly correlated with connectedness to self than with connectedness to friends. This reflects the only lack of evidence for convergent validity among the composite scales. Evidence of discriminant validity is presented in the rows in Table 2, which compares the connectedness composite scales to the four self-esteem scales. The friends scale had the greatest discriminant validity. The connectedness to self-scale demonstrated little discriminant validity, as its correlations with the domains of school and friends were greater than with self-esteem.

Cross-Validation of the Structure of Adolescent Connectedness

The data were then subjected to the three-factor structure found in U.S. samples (Karcher, 2001) in which connectedness is considered a general construct that is explained by social, academic, and family factors.

This three-factor structure of the connectedness was tested against two equally plausible models. Using confirmatory factor analyses, the first (hypothesized, higher order) model included three first order factors for social, academic, and school connectedness, and a higher order factor for general connectedness. This model tested the hypothesis that the U.S. model fit the Taiwanese data (see Figure 1). The second (alternative 1, one factor) model tested the hypothesis that all of the subscales contribute uniquely to an overall connectedness construct that has no ecological second-order factors. In this model there were direct paths from one connectedness factor to each of the subscales. The third (three factor) model tested the hypothesis that connectedness to social, academic, and family worlds reflect separate or distinct phenomena that do not reflect an overall connectedness construct. Because of the questionable validity of the connectedness to religion and to culturally different youth, and the reactions to disconnection subscales, these were not included in the models that were tested.

The goodness of fit indices for these three models are presented in Table 4 and indicate that only the hypothesized (U.S., higher order factor) model adequately fit the Taiwanese data. Several criteria were examined. The χ^2/df test provides evidence that a model fits the data well if the statistic falls below 3 (Kline, 1998). The Normed Fit Index (NFI) and the Comparative Fit Index (CFI) are incremental tests of model fit which compare the hypothesized model to a null model in which all variables are uncorrelated. The Nonnormed Fit Index (NNFI) does the same but makes adjustments to account for model complexity. The Goodness of Fit Index (GFI) estimates model fit based on residuals. All

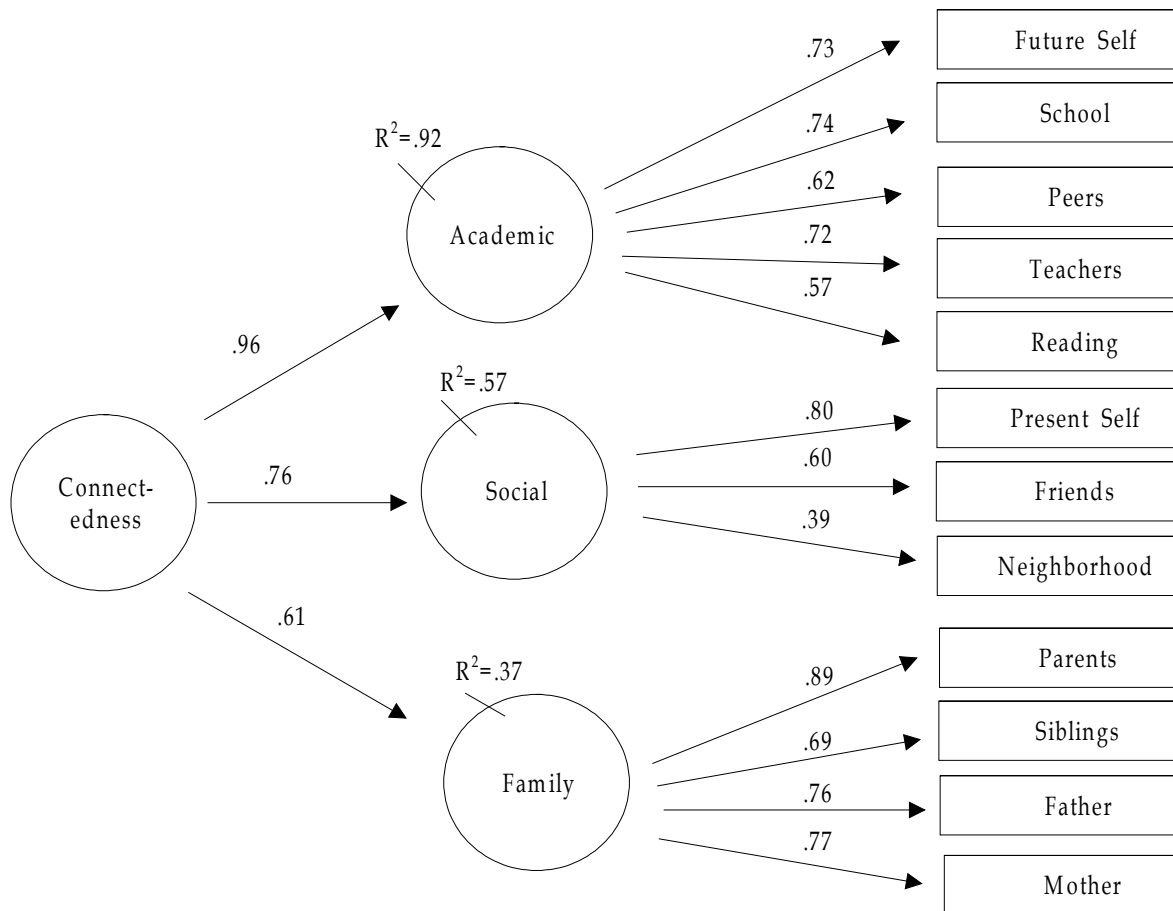


Figure 1. Hypothesized higher order confirmatory factor analytic model for the Measure of Adolescent Connectedness (N = 297). All path coefficients are standardized.

four of these fit indices provide an indication of a good-fitting model when each is greater than .95. The final model fit index is the Root Mean Square Error of Approximation, which should fall below .10 and within a 95% confidence interval of 0 to .15. Only model one, the higher order model based on U.S. studies satisfied these criteria. Thus, based on the set of indices, the hypothesized model 1 was the only model that fit the data well. It suggests that, as for youth in the U.S., in Taiwan there is a general construct of connectedness, which may be characterized in terms of either social, academic, or familial factors. These factors respectively explained 57, 92, and 37 % of the variance in the Taiwanese youths' responses to subscale items in the social, academic, and family factors, respectively.

Ecological, Developmental, and Sex Differences in Connectedness

The second set of analyses tested three hypotheses based on research on youth in the U.S. First we tested the relative contribution of family and non-family connectedness to self-connectedness. Second we tested for gender differences in connectedness. Third we examined changes in conventional and unconventional connectedness between seventh and ninth grades to test for the presence of separation-individuation processes.

Correlates of Connectedness to Self

To determine which of the worlds of connectedness

contributed the most to self-connectedness, Pearson zero-order correlations were examined between the connectedness to self composite scale and both the self-esteem scales (SEQ) and the other connectedness composite scales (MAC)(see Table 2). Connectedness to self is the composite scale that includes the future and present connectedness to self items. Contrary to the collectivist culture hypothesis that prioritizes family contributions to self-connectedness, both the SEQ school self-esteem and SEQ friends self-esteem scales were more highly correlated with MAC connectedness to self composite scale (and to the SEQ self-esteem scale) than was the SEQ family self-esteem (see rows four and eight, and column eight in Table 2). This cross-validates findings with youth in the U.S. (Dubois et al., 1996). In terms of the connectedness scales as predictors, connectedness to school was the most highly correlated with the connectedness to self composite scale, followed by friends and then family connectedness (see row eight and column eight in Table 2). Only for the girls was the friend connectedness scale less strongly related to the self-connectedness scale than was the family connectedness scale.

Between-Groups Differences: Gender and Grade

To examine sex differences in connectedness, a one-way MANOVA with the 15 connectedness subscales as dependent variables was conducted with sex as the grouping factor. Complete data was available for 291 of the 305 respondents. To reduce type one error, an adjusted level of significance was used. A Bonferroni adjustment of the conventional .05 level of significance for the number of tests conducted (15) suggested using a

.003 level of significance. The overall MANOVA was significant, $F(1, 289) = 4.66, p < .001$, and a main effect of sex was found for five of the scales at the .003 level of significance. Girls reported being more connected than boys to their peers, teachers, school, to reading, and to youth from other cultures (see Table 1). Differences between boys and girls in their connectedness to friends and to a self-in-the-future only reached the .01 level of significance, with girls reporting more.

Evidence of Separation-Individuation Processes

To test for evidence of separation-individuation processes in junior high, we examined mean differences in the five connectedness subscales across 7th, 8th, and 9th grade to see if youth reported less connectedness to mother, father, and peers and greater connectedness to friends and to self-in-the-present across these age groups. A one-way MANOVA was conducted with these five subscales as the dependent variables and three levels of grade as the between groups factor. To reduce type one error, a Bonferroni adjustment ($.05 \div 5$) of the level of significance to .01 was used. The overall MANOVA was significant, $F(2, 303) = 4.34, p < .001$, and a main effect of grade on connectedness to mother and peers was found. Ninth graders reported being less connected to their mothers than either seventh or eighth graders, and seventh graders were more connected to their peers than were eighth or ninth graders (see Table 5). There was inconclusive evidence of increased connectedness to friends, and no evidence of increased connectedness to self-in-the-present or of separation (i.e., disconnection) from father between seventh and ninth grades.

Table 5. Effects of Grade on Connectedness to Parents, Peers, and Friends

Connectedness Scale	Grades						F	d
	7th Grade (n = 109)		8th Grade (n = 98)		9th Grade (n = 102)			
	Mean	SD	Mean	SD	Mean	SD		
Parents	3.83	.69	3.91	.66	3.79	.65	.63	.18
Father	3.34	.86	3.45	.88	3.35	.85	.47	.13
Mother	3.79	.97	3.78	.80	3.44 ^(7,8)	.85	4.56**	.39
Peers	4.01 ^(8,9)	.49	3.84	.60	3.73	.56	6.74****	.53
Friends	3.84	.69	3.69	.68	3.90	.73	2.22+	.30

Notes. Bonferroni post hoc tests of differences between means are denoted by super-scripts in parentheses indicating the grade means which differ from that particular mean.

+ $p < .10$, ** $p < .01$, **** $p < .001$. d computed between largest and smallest means.

Discussion

In the first set of analyses we found the Hemingway: Measure of Adolescent Connectedness (MAC) to be a reliable and valid measure of connectedness for use with Taiwanese junior high school students. All four of the composite scales and most of the subscales demonstrated good properties of validity and reliability with this Taiwanese junior high sample. However, we found the connectedness to neighborhood and connectedness to peers subscales to be the least reliable. The connectedness to religion/ancestors, connectedness to youth from other cultures, and the reaction to disconnection subscales were of questionable validity. Finally, we successfully cross-validated with Taiwanese youth the structural model of adolescent connectedness found with U.S. youth. This model, which presents three factors for social, academic, and family connectedness, fit the Taiwanese data better than both the global, one factor model and the three orthogonal factors model. As a whole these findings suggest the measure is reliable, valid, and reflects an underlying structure similar to that found among youth in the United States.

The results of the second set of analyses are also consistent with studies of youth in the U.S. in terms of gender differences, the importance of social and academic connectedness in self-connectedness, and the presence of separation-individuation processes among Taiwanese youth.

A Review of Subscale and Composite Scale Psychometric Properties

Social Connectedness: Unconventional Connections

There were two differences between U.S. and Taiwanese connectedness to friends. First, connectedness to friends in Taiwan may include a greater degree of conventionality than found in the U.S. The stronger relationships between connectedness in friendships and in school in Taiwan than in the U.S. highlights the possibility that the unconventional/conventional distinction--youth-mediated connectedness compared to adult mediated connectedness--may not be as significant a distinction as family versus non-family connectedness in Taiwan. A second difference between this sample and U.S. samples is that, although adolescents seem to

universally have a need to develop close friendships, the Taiwanese adolescents in this sample reported feeling less comfortable talking with their friends about personal issues, especially family concerns, as their U.S. peers do. This may result from the old Chinese saying, "The stigmas (or weaknesses) of the family or family members are not to be told to outsiders". Taiwanese adolescents appear to enjoy being with friends, but when they need to talk about personal issues, they might be more hesitant to do so than youth in the U.S.

The connectedness to self-in-the-present scale was reliable and appeared valid, but compared to youth in the U.S., claims of pride in one's own skills and uniqueness were less central for the Taiwanese youth. Generally speaking, the phrase of "self-esteem" comes from Western culture and it focuses on the distinctiveness of persons and on direct expressions of one's valuing of oneself. There is some question about whether this construct has the same meaning or value in collectivist societies. Indeed, items in which youth noted their own positive characteristics had lower item means in this sample. In past generations Taiwanese teens were discouraged from such self-valuing, but they are now increasingly influenced by Western culture. Perhaps adolescents in today's Taiwan pay more attention to their individual differences and uniqueness even though they are still more likely to identify with beliefs, values, and behavioral styles of their culture and resist espousing pride in themselves and their uniqueness (Asakawa & Csikszentmihalyi, 2000).

Academic Connectedness: Conventional, Non-Family Connections

The weaker correlations between connectedness to teachers and to parents in this sample than in U.S. samples highlights the separation between family and non-family more than between peer-based and adult-based connectedness. Based on family values that include the importance of hard work, respect for education, and high expectations for achievement (Asakawa & Csikszentmihalyi, 2000), Taiwanese teens would be expected to have a strong tendency to seek connectedness to teachers. Although connectedness to teachers has been described as "an extension of a conventional connectedness to parents" (Karcher, 1999, p. 10), for Taiwanese youth, this scale was more

highly correlated with the other school scales, like reading, school and peers, than with family and especially for girls. This suggests that for Taiwanese girls connectedness to teachers may not reflect a transfer of relatedness with parents as much as a distinct attitude towards schooling. Although, according to traditional Chinese values, students should demonstrate total respect for teachers (e.g., as an old Chinese saying states: "If someone teaches you even for one day, you have to respect that person like a father for a life time".), it is interesting that there was only a significant relationship between connectedness to father and connectedness to teachers for the boys.

The connectedness to a self-in-the-future scale was reliable and demonstrated good convergent validity with other conventional scales. However, this scale emphasized school as a means to future success and appeared to emphasize less the importance of extracurricular activities. Asakawa and Csikszentmihalyi (2000) argue that educational achievement and meeting the expectations of family are strongly valued in Asian cultures. Thus, Asian adolescents are likely to focus on their long-term goals, report high involvement in academic activities, be eager to achieve their future goals, and thereby make their families proud of them. We found evidence that junior high school students in Taiwan may work harder on academics to secure their future and to please their families than on sports or other extracurricular activities.

Connectedness to peers was sufficiently distinct from connectedness to friends, and demonstrated good validity despite low reliability. Youth in schools are increasingly required to interact competently with peers (as opposed to friends) in conventional ways. Therefore the ability to effectively interact with peers is an important manifestation of academic connectedness. The peers subscale's higher correlations with connectedness to school, teachers, and friends suggest it is a school-based relational construct reflecting conventional, cooperative, peer relationships. Its relationship with connectedness to parents also suggests attitudes towards peers may reflect the extension of feelings toward primary attachment figures to other conventional relationships in junior high.

Connectedness to Family: Conventional, Familial Connections

The content and reliability of the connectedness to mother and to father scales were different in this

sample, suggesting Taiwanese youth experience connectedness with their parents differently. There may be two explanations for this difference in reliability. First, an order effect may be present given that each of the items about connectedness to mother followed the same items about the father. Second, each parent may serve a different function, and the item correlations may reflect these differences. It has been suggested that, fathers typically discuss only some aspects of adolescents' lives, such as future schooling, and ignore others, such as their friendship concerns, while mothers are described as more open to listening to personal concerns and helping clarify feelings (Youniss & Ketterlinus, 1987). However, it seems the item "My [mother/father] and I argue about things a lot" reflects a practice that is more common in the U.S. than in Taiwan, because it had weak correlations with other items measuring connectedness to parents, in general. This item had especially low intercorrelations with the other items in the father scale. But this item was highly related to the other connectedness to mother items. Conversely, the item "My [mother/father] and I are pretty close" was a good item for the father but not the mother subscale. Taiwan is patriarchal and most youth regard fathers as the family authority figure. Taiwanese youth may feel more comfortable reporting disagreements with their mothers than with their fathers, and like U.S. youth, they may resist maternal closeness, preferring to establish some separation from them. This hypothesis was supported by the separation-individuation analyses which present the possibility that by early adolescence, youth have differentiated or separated from their fathers more than their mothers, and therefore, their involvement with each parent is different.

Subscales of Questionable Validity

There were four scales of questionable validity. First, the utility and validity of the *Connectedness to Culturally-Different youth* subscale was questionable because there are not many different cultural or racial groups in Taiwan. Most people in Taiwan are Chinese.

Second, the *Connectedness to Religion* subscale also is of questionable validity because of the definition of religion in the Hemingway measure. Although this scale was related to the other family scales (demonstrating convergent validity), and the assumption that connectedness to religion "reflects faith in an external power, a larger

sense of community connection, and an appreciation of conventional worlds" (Karcher, 1999, p. 11) is supported by the basic Chinese belief that "the individual is only a very small part of the world" (content validity), the practice of many religions in the West differs from those in the East. Specifically, religious services in Taiwan are usually held several times a year according to the memorial dates. Changing the frequency of religious practice in these items might improve the subscale's validity.

Third, the *Connectedness to Neighborhood* scale appeared least reliable and presented different patterns of correlations for boys and girls. It correlated highly with the conventional family subscales for girls less than for boys, suggesting that this may reflect a different phenomenon for the two sexes. Unlike in the U.S., correlations in this study suggested this scale reflects time with family as well as friends. Given the family-orientation of Taiwanese society and the limited space for play in most neighborhoods the nature of connectedness to neighborhood should be further investigated.

Fourth, the Reactions to Disconnection scale appeared to reflect cultural socialization and defensiveness. The non-significant relationships between this scale and other self-oriented scales data suggests this scale did not reflect the "presence of self-development and [their] ability to soothe, calm, and praise [themselves]" (Karcher, 1999, p. 12). Rather it is likely that this scale elicited a positivity-bias and culturally desirable responses. Through education at school and at home, Taiwanese teens are usually taught to control their tempers and to express their emotions in an indirect way (Rothbaum, Pott et al., 2000). They are expected to be kind to others even when others are mean or rude to them. Therefore, when Taiwanese youth report high scores on this scale (low anger), it may not reflect their self-development as much as their responsiveness to cultural norms. However, low scores on this scale may identify teens who know they lack the ability to control their tempers or accept criticism, particularly in important relationships. Girls who reported not easily getting upset and angry about criticism (low scores) reported less connectedness to friends. For boys, the less upset and angry they reported feeling in response to criticism, the less connected they felt to their teachers. Nevertheless, the scale did not correlate with connectedness to self, friends, and neighborhood, as found in the U.S., which renders it of questionable validity.

Analyses of Sex Differences, Properties of Connectedness to Self, and Individuation Processes

Girls Report More Connectedness to School than Do Boys

Consistent gender differences were found with girls reporting greater connectedness on the school-related subscales: school, teachers, reading, peers, and youth from other cultures. Sex differences on the family connectedness subscales were not significant, and gender differences in connectedness to friends and to a self-in-the-future only reached the .01 level of significance.

Perhaps equally important is the finding that the interrelationships among connectedness scales were generally stronger but less differentiated for boys suggesting there is less variation in boys' reports of connectedness across their social ecology than there is for girls in Taiwan. This may suggest that girls paid closer attention when answering the questions or it may mean that boys have a more generalized sense of connectedness (i.e., like a generalized "sense of belonging"; see Lee & Robbins, 1995). If so, it may be said that girls have a more relationship-specific experience of connectedness (e.g., like dyadic "relatedness"; Hagerty et al., 1993), which might result from somewhat rigid gender socialization practices found in patriarchal cultures like Taiwan and the U.S. (Chodorow, 1979; Gilligan, 1982; Jordan et al., 1991). Further research, particularly cross-cultural studies, should attempt to explore the relative contributions of gender socialization and collectivism/individualism to adolescent connectedness for boys and girls.

Multiple Correlates of Connectedness to Self

We examined the relationships among the connectedness composite scales and the self-esteem scales and found family scales in general to be less significant predictors of connectedness to self and to self-esteem than anticipated. Contrary to the idea that family connectedness would best explain connectedness to self, both school self-esteem and connectedness to school were more highly correlated with the connectedness to self and the self-esteem scales than were the family scales. The friend scales were more strongly related to the self scales than were the family scales for the boys but not the girls. These findings suggest that being connected to school contributes as much or more to Taiwanese adolescent self-connectedness than does connectedness

to family, and that friendship is also central to self-development, especially for boys. It may be that collectivist theories which emphasize family influences alone do not fully account for all of the significant ecologies of connectedness that contribute to the self-development and self-esteem of Taiwanese youth.

These data suggest that by junior high the ecology of adolescents' connectedness has expanded to include several worlds beyond the family, and it appears that interpersonal connections are stronger than connectedness to self or to societal institutions and ideologies. The six highest ranked subscales were people-culturally different youth, peers, parents, friends, teachers, and mother—followed by their future, present self, and school. Although a direct comparison of these ratings is confounded by the varying numbers of reverse-scored items within subscales, the high scores on the relationship-specific connectedness subscales attests to the universal need for interpersonal connectedness and its importance for Taiwanese youth.

Separation But Not Individuation During Junior High School

The results provide some support for the presence of separation processes but not of individuation processes among Taiwanese adolescents in junior high school. Connectedness to mother and to peers decreased across grades in junior high suggesting separation processes occurred, but there was no evidence of increased connectedness to friends or to self between 7th and 9th grades that would suggest increased individuation during this time period. Similarly, there was no change in connectedness to father during this period, which raises the possibility of timing variations in adolescents' differentiation from their respective parents. Because both boys and girls felt more connected to their mothers than to their fathers, at least in terms of mean scores, it may be that youth have already differentiated somewhat from their fathers but are only just starting to separate from their mothers during junior high school.

There also was evidence of increased disconnection from peers between seventh and ninth grade, which would reflect a differentiation from conventional relationships. These weakening connections with peers (i.e., non-friend classmates) and parents during early adolescence found in these data also have been reported

in the U.S. (Buhrmester, 1990; Ryan, Stiller, & Lynch, 1994; Youniss & Ketterlinus, 1987).

Friendship connectedness is very important to Taiwanese adolescents during junior high school. Because the connectedness to friends subscale has the fourth highest mean, it provides some measure of the importance of friendship to Taiwanese youth. However, the means for connectedness to friends are virtually identical to those of connectedness to parents, suggesting that as Taiwanese adolescents start to seek out and emphasize their relationships with friends, they may remain more connected to their parents than youth in the U.S.

Further study is warranted on the phenomena of separation and individuation processes. Separation-individuation research has generally focused on a bi-directional process: movement away from parents and towards friends and self-development (Grotevant & Cooper, 1998). An equally viable way to view individuation processes in Taiwan could be to view separation and individuation as a function of relationship differentiation. Youth may move away from most of the relationships that were *provided to them* (parents, peers) and toward deepening relationships with whom *they choose* to associate (friends). Without longitudinal research or assessments of youths' levels of connectedness in elementary school, this hypothesis and the possibility that separation from fathers and siblings occurs earlier remains speculative.

Limitations and Future Directions in Research on Adolescent Connectedness

Future study of the MAC scales' reliability and validity should be conducted with different economic and age groups. Reliability, like validity, varies across samples (Heppner, Kivlighan, & Wampold, 1999). For example, the strong connection to school among girls, and the relatively weak contributions of family connectedness to connectedness to self in this sample might not replicate in rural or farming communities. Similarly, the variation in connectedness within this narrow time period suggests there may be even greater differences between elementary, junior, and high school students. In addition to sample limitations, this study was limited by employing only one source of connectedness (self-report) and one measure of reliability. Campbell & Fiske (1959) argue that multitrait and multimethod comparisons are best for assessing scale validity. To better estimate the scale's reliability, future research might

estimate split-half or multiple forms' reliability as well as test-retest reliability. However, prior to such study, the validity of several of the adolescent connectedness scales and their underlying constructs should be studied further. This is certainly the case for the subscales of connectedness to peers, neighborhood, religion/ancestors, and youth in other cultures. The reaction to disconnection subscale, and specifically whether or not such a construct can be adequately measured through self-report assessments, deserves further investigation as well. Overall, however, the scale appears promising in terms of its use for future research into the social development of adolescents in the Asia Pacific nations.

Uses of the Measure in Education

The Hemingway Measure of Adolescent connectedness has several uses for educators. It could be used to measure changes in youths' attachment to school, family, or peers resulting from either targeted intervention programs (e.g., Karcher, Davis, & Powell, in press) or general changes in the school, such as when two schools are combined into one or when new educational programs are initiated. The measure may be helpful in identifying the level of risk for violence or dropout posed by particular groups of youth (e.g., Karcher, in press). Completed at the beginning, middle, and end of each academic year, patterns of engagement and disengagement from school, teachers, peers, and reading might be assessed in schools as a way of identifying the most appropriate times for particular curricular activities or prevention programs. By identifying programs, curricula, and calendar periods related to youths' connectedness in these ways, educators may be better able to facilitate social and individual development among their students and create a more harmonious learning environment in their schools.

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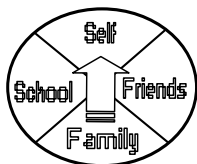
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Appendix A

THE HEMINGWAY (MAC 4):
 MEASURE OF
 ADOLESCENT CONNECTEDNESS
 M. J. Karcher, Ed.D., Ph.D.,
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Name/Number: _____

Date: _____

Sex: Male__ Female__

Grade: __

Age: __

Please use this survey to tell us about yourself. Read each statement. CIRCLE the number that best describes how true that statement is for you or how much you agree with it. If a statement is unclear to you, ask for an explanation. If it still unclear, put a " ? ". **"How TRUE about you is each sentence?"**

Not at all = 1 Not really = 2 Sort of true = 3 True = 4 Very true = 5

	Not at all	Not really	Sort of true	True	Very true
(1) I like hanging out around where I live (like my neighborhood).	1	2	3	4	5
(2) Spending time with my friends is the best part of my day.	1	2	3	4	5
(3) I can name 5 things that my friends like about me.	1	2	3	4	5
(4) I want my parents to be proud of me.	1	2	3	4	5
(5) I have a lot of fun with my brother(s) or sister(s).	1	2	3	4	5
(6) I work hard at school.	1	2	3	4	5
(7) My classmates often bother me.	1	2	3	4	5
(8) I care what my teachers think of me.	1	2	3	4	5
(9) I will have a good life ahead of me.	1	2	3	4	5
(10) I enjoy spending time by myself reading.	1	2	3	4	5
(11) I spend a lot of time with kids around where I live.	1	2	3	4	5
(12) I have friends I'm really close to and trust completely.	1	2	3	4	5
(13) I am happy with the kind of person I am.	1	2	3	4	5
(14) It is important that my parents trust me.	1	2	3	4	5
(15) I feel close to my brother(s) or sister(s).	1	2	3	4	5
(16) I enjoy being at school.	1	2	3	4	5
(17) I like pretty much all of the other kids in my grade.	1	2	3	4	5
(18) I want to be respected by my teachers.	1	2	3	4	5
(19) Doing well in school will help me get the things I want out of life.	1	2	3	4	5
(20) I like to read.	1	2	3	4	5
	<u>Not at all</u>		<u>Sort of true</u>		<u>Very true</u>
(21) I get along with all the kids in my neighborhood.	1	2	3	4	5
(22) Spending time with my friends is a big part of my life.	1	2	3	4	5
(23) I can name 3 things that other kids like about me.	1	2	3	4	5
(24) I enjoy spending time with my parents.	1	2	3	4	5
(25) I enjoy spending time with my brothers/sisters.	1	2	3	4	5
(26) I get bored in school a lot.	1	2	3	4	5
(27) I like working on projects with the other kids in my classes.	1	2	3	4	5
(28) I do not get along with some of my teachers.	1	2	3	4	5
(29) I do things outside of school to prepare for my future.	1	2	3	4	5
(30) I never read books in my free time.	1	2	3	4	5
(31) I often spend time playing or doing things in my neighborhood.	1	2	3	4	5

(32) My friends and I talk about personal things that are important to us.	1	2	3	4	5
(33) I really like who I am.	1	2	3	4	5
(34) My parents and I have fun together.	1	2	3	4	5
(35) I try to spend time with my brothers/sisters when I can.	1	2	3	4	5
	<u>Not at all</u>	<u>Not really</u>	<u>Sort of true</u>	<u>True</u>	<u>Very true</u>
(36) I do well in school.	1	2	3	4	5
(37) I get along well with the other students in my classes.	1	2	3	4	5
(38) I try to get along with my teachers.	1	2	3	4	5
(39) I do lots of things in school to prepare for my future.	1	2	3	4	5
(40) I often read when I have free time.	1	2	3	4	5
(41) I hang out a lot with kids in my neighborhood or city.	1	2	3	4	5
(42) I spend as much time as I can with my friends.	1	2	3	4	5
(43) I have special hobbies, skills, or talents.	1	2	3	4	5
(44) My parents and I get along well.	1	2	3	4	5
(45) I spend a lot of time with my brother/sister(s).	1	2	3	4	5
(46) I feel good about myself when I am at school.	1	2	3	4	5
(47) I often argue with the other kids at school.	1	2	3	4	5
(48) I always try hard to earn my teachers trust.	1	2	3	4	5
(49) What I do now will not affect my future.	1	2	3	4	5
(50) For fun I read on my own at least once a week.	1	2	3	4	5
(51) My neighborhood is boring.	1	2	3	4	5
(52) My friends and I spend a lot of time talking about things.	1	2	3	4	5
(53) I have unique interests or skills that make me interesting.	1	2	3	4	5
(54) Doing well in school is important to me.	1	2	3	4	5
(55) I am liked by my classmates.	1	2	3	4	5
	<u>Not at all</u>		<u>Sort of true</u>		<u>Very true</u>
(56) I enjoy spending time with my father.	1	2	3	4	5
(57) I enjoy spending time with my mother.	1	2	3	4	5
(58) I like getting to know kids from other cultural or racial groups.	1	2	3	4	5
(59) I get very angry when people tease me or put me down.	1	2	3	4	5
(60) My religion is very important to me.	1	2	3	4	5
(61) My father and I are pretty close.	1	2	3	4	5
(62) My mother and I are pretty close.	1	2	3	4	5
(63) I get very angry when people criticize me.	1	2	3	4	5
(64) I would like to know more people from different cultural groups.	1	2	3	4	5
(65) I attend a religious service (like church) at least once a month.	1	2	3	4	5
(66) My father cares a lot about me.	1	2	3	4	5
(67) My mother cares a lot about me.	1	2	3	4	5
(68) My father and I argue a lot.	1	2	3	4	5
(69) My mother and I argue a lot.	1	2	3	4	5
(70) I like getting to know people who are culturally different from me.	1	2	3	4	5
(71) I am a religious or faithful person.	1	2	3	4	5
(72) I talk with my father about very personal things and my problems.	1	2	3	4	5
(73) I talk with my mother about very personal things and my problems.	1	2	3	4	5
(74) I get pretty upset when other people are mean or rude to me.	1	2	3	4	5

Appendix B

SCORING INSTRUCTIONS.

Creating Mean Subscale and Composite Scale Scores

Reverse score items 7, 26, 28, 30, 47, 49, 51, 59, 63, 68, 69, 74 by changing scores: 1 becomes 5, 2 becomes 4, 4 becomes 2, and 5 becomes 1.

Composite Mean Score Computations: Average items in each composite scale to obtain a mean for each of the 4 composite scales

Mean of Friends & Neighborhood items = Friends Composite
 Mean of Self-in-the-present & Self-in-the-future items = Self Composite
 Mean of Parents & Siblings items = Family Composite
 Mean of School & Teachers items = School Composite

Subscale Mean Score Computations: Average items in each subscale to obtain a mean for each subscale.

Neighborhood (1 + 11 + 21 + 31 + 41 + 51 reversed) ÷ 6
 Friends (2 + 12 + 22 + 32 + 42 + 52) ÷ 6
 Self-in-the-Present (3 + 13 + 23 + 33 + 43 + 53) ÷ 6
 Parents (4 + 14 + 24 + 34 + 44) ÷ 5
 Siblings (5 + 15 + 25 + 35 + 45) ÷ 5
 School (6 + 16 + 26 reversed + 36 + 46 + 54) ÷ 6
 Peers (7 reversed + 17 + 27 + 37 + 47 reversed + 55) ÷ 6
 Teachers (8 + 18 + 28 reversed + 38 + 48) ÷ 5
 Self-in-the-Future (9 + 19 + 29 + 39 + 49 reversed) ÷ 5
 Reading (10 + 20 + 30 reversed + 40 + 50) ÷ 5
 Father (56 + 61 + 66 + 68 reversed + 72) ÷ 5
 Mother (57 + 62 + 67 + 69 reversed + 73) ÷ 5
 Culturally Different Youth (58 + 64 + 70) ÷ 3
 Reaction to Disconnection (59 reversed + 63 reversed + 74 reversed) ÷ 3
 Religion (60 + 65 + 71) ÷ 3

* Those who would like to see chinese versions of Appendix A and B can ask to the author.

XXXIX

MEASURING AND EVALUATING ADOLESCENT CONNECTEDNESS

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Introduction

School counselors who can demonstrate that their guidance and counseling programs result in improvements in their students' connectedness to school, teachers, and peers are less likely to be pulled in 100 different directions by administrators, teachers, and parents. Based on our experiences, we argue that this is because such counselors are viewed as providing unique and highly valued services. However, school counselors who utilize a comprehensive and organized approach to deliver guidance presentations, individual student planning, system support, and responsive services (American School Counselor Association [ASCA], 2003), and who can demonstrate that this coordinated set of services results in improved connectedness among their students are less likely to be asked (or expected) to engage in nonguidance activities, such as supervising testing, scheduling classes, or supervising lunch.

Or, if asked, these counselors can point to their impressive body of evaluative evidence. They can use it to define the borders of their professional duties and thereby educate parents and colleagues alike about the unique and valuable role that professional counselors play in schools.

It is therefore incumbent upon school counselors to create and organize a quality program that is amenable to evaluation in order to demonstrate accountability. The planning of such thoughtful, focused, and intentional services takes time, but also requires forethought in order to anticipate desired outcomes that from the outset are measurable. Compounding these time constraints on program planning, many school counselors may believe they have limited training or insufficient tools at hand to link their program component's activities to program evaluations.

This chapter provides a guide to help school counselors both to systematically assess and strengthen the impact of their school counseling programs by focusing on promoting changes in students' connectedness. The theory of adolescent connectedness (Karcher, 2001) presented in this chapter defines connectedness as movement toward others through positive affect and activity. Connectedness is reflected in a student's response to feelings of relatedness and belonging. This definition provides the first key to intervention: To promote connectedness, school counselors must create school contexts where youth feel a sense of belongingness at school and relatedness to teachers and peers. When youth feel a sense of relatedness and belonging, they typically value those relationships and social institutions in which they experience the belongingness and relatedness. But school counselors then must help students pursue related activities and relationships, which cements their connections through behavioral and affective commitment. Finally, connectedness can be captured in adolescents' own perceptions of their own involvement

in and affection for others, activities, and organizations. Given this, connectedness is measurable and can be used as an indicator of program outcomes.

Of course, connectedness is but one outcome or construct a school counselor might wish to measure as evidence of outcomes. Other important constructs include social skills, self-esteem, peer attachment, cultural competence, and other behavioral and attitudinal indices of social competence and a positive orientation to school. For the purposes of this chapter, connectedness is solely emphasized in order to provide a comprehensive overview of one measure, its uses and evaluative procedures, which we believe will allow the reader to make generalizations and comparisons to other measures.

The Problem—Capturing the Effects of School Counseling Programs

The notion of connectedness has become increasingly popular in the media as well as in academic and educational settings (Lezin, Roller, Bean, & Taylor, 2004; Resnick, Harris, & Blum, 1993). The construct of connectedness is viewed by many as increasingly important in a mobilized, postindustrialized, multicultural, and technologically alienating society, such as is found in the United States. Children and adolescents need healthy connectedness to family, siblings, friends, and eventually romantic partners in order to weave themselves tightly into a supportive social network. Connectedness to school, teachers, and peers during the middle and high school years is a particularly strong predictor of academic and future success, but it also helps to prevent alienation, which can lead to violence like that of the Columbine massacre, Washington, DC shootings, or the countless other acts of desperation performed by students in recent years (Henrich, Brookmeyer, & Shahar, 2005; Karcher, 2002). Adolescents also need to learn to effectively connect with culturally different peers, the world of reading, a source of spirituality (regardless of persuasion, denomination, or creed), and to their neighborhoods. Because parents and researchers alike recognize the ubiquitous necessity of connectedness, it is important for school counselors to know how they promote and measure connectedness.

[AQ3]

Using Connectedness to Capture, Profile, and Predict Developmental Assets

The Measure of Adolescent Connectedness described in this chapter had direct parallels to the Developmental Assets presented by the SEARCH Institute. The 40 Assets listed in the SEARCH framework focus the attention of school counselors, teachers, parents, and youth on the positive relationships, opportunities, skills, and values that can support the healthy growth and development of youth (Scales & Leffert,

1999). The model asserts that the more young people experience these 40 Developmental Assets, the more likely they are to engage in prosocial behaviors and conversely, the less likely they are to participate in harmful behaviors (Benson, Galbraith, & Espeland, 1995). Using data collected with the SEARCH Developmental Assets survey, we illustrate these connections in later sections to illustrate ways in which the measure of adolescent connectedness can serve as a proxy measure of assets and can thereby be used to facilitate and extend the use of the Developmental Assets framework.

The SEARCH Institute's Developmental Assets constructs have become a central organizational framework for many school districts, helping school counselors organize efforts to promote external and internal assets among students (Scales, 2005). Numerous school districts have used the SEARCH Institute's Developmental Assets framework to make fundamental changes in the structure of their schools and to improve students' relationships with teachers and peers. In addition, statewide initiatives, such as California's Proposition 49, actually require that school connectedness be assessed in addition to other constructs currently directing guidance programming in schools. The Measure of Adolescent Connectedness can be used to supplement and extend the Developmental Assets framework by linking guidance program content with measurable outcomes. We argue that using the connectedness construct and measure described in this chapter may make the asset-promoting activities they propose even more useful in guidance programming.

Finally, our approach is based on the authors' combined experiences of conducting research on connectedness and our firsthand experience as school counselors and the director of school guidance programming for a large urban school district that used the SEARCH Developmental Assets framework as its organizing framework. Based on these experiences, we focus on illustrating ways to track changes in connectedness that result from guidance programming within the schools. In order to help the reader better understand how to assess connectedness among middle and high school-aged students, we present a theory of adolescent connectedness, describe the Hemingway Measure of Adolescent Connectedness, provide normative data for one district and new research on connectedness, and finally bring this theory and research to practice by describing several strategies for developing a program of services that carefully links evaluation with efforts to promote assets and connectedness as part of a comprehensive guidance program.

Theory

Connectedness has been described as one of the five "Cs" that Lerner, Fisher, and Weinberg (2000) suggested youth

development programs must target. This is due, in part, to its usefulness as a predictor of a number of developmental competencies as well as risk behaviors. However, while to date no theoretically derived measure of adolescent connectedness has been empirically tested for use in schools, adolescent connectedness has landed squarely in the middle of the emerging field of applied youth development (Roth & Brooks-Gunn, 2003). For example, in their review, Roth and Brooks-Gunn found that all of youth development programs they reviewed attempted to promote one or more forms of connectedness. Of these programs, 73% explicitly “sought to improve adolescents’ connections; connections with their families (40%) and peers (42%) were the most common connection goals for the programs” (p. 207). Yet, only half of those programs designed to promote connectedness actually used a measure of connectedness to evaluate program success. “More programs held goals of promoting . . . connections than actually measured these characteristics in the evaluations. Of 35 programs promoting connectedness only 19 (54%) reported measures of connectedness” (p. 215).

The absence of a measure of adolescent connectedness and definitional framework presents a huge barrier to fully exploiting the usefulness of the connectedness construct as a target of school counseling programs. Adolescent connectedness must be clearly defined and reliably measurable before research can have a positive influence on the field of school counseling and the applied developmental sciences. Measures used in most studies have been ad hoc, and when described within each study, the term connectedness often has been used interchangeably with other words like bonding, attachment, belongingness, and relatedness. Not until a clear nomenclature for connectedness is established and measures of connectedness receive sufficient validity evidence will this, the third of the five Cs of applied youth development programs, be a useful and meaningful measure of programmatic influences of school counseling on youths’ developmental competencies.

The Ecology of Adolescent Connectedness

The model of connectedness presented in this chapter is derived from ecological and developmental theory. From these perspectives each world of the adolescent’s social ecology—school, friends, family, and neighborhood—can be viewed as a world of connectedness. Used in this way, the term *world* refers to common and important contexts, relationships, and activities of engagement in the lives of adolescents (Nakkula & Selman, 1991).

The concept of connectedness has sometimes been restricted to participation or involvement in interpersonal relationships (Gilligan, 1991; Jordan, Kaplan, Miller, Stiver, & Surrey, 1991), but this definition is needlessly restrictive and incon-

sistent with the public’s broader use of the term, which is more ecological in nature. Broadly defined, connectedness includes the acts of giving back to, being involved with, and investing oneself in an effective manner in places and activities as well as in relationships with other people. “Connectedness occurs when a person is actively involved with another person, object, group or environment, and that involvement promotes a sense of comfort, well-being, and anxiety-reduction” (Hagerty, Lynch-Sauer, Patusky, & Bouwsema, 1993, p. 293). Connectedness is not restricted to relationships. For example, youth can be connected to school and to reading just as they may care for, enjoy, and be actively involved with a teacher, peer, friend, or parent.

We suggest that there is a connectedness to self, which emerges during adolescence as a sense of self that is influenced by unique relationships with family memberships, teachers, and friends (Erikson, 1950; DuBois, Felner, Brand, & Phillips, 1996). Adolescents’ self-esteem in these contexts informs a connectedness to self that is primarily present oriented. In addition, the ability to think abstractly results in the differentiation of a *present self* and a *future self* (Harter, 1999). Because youth can have feelings about and engage in activities directed toward each of these selves, we include them as well.

The ecology of adolescent connectedness includes all of the significant ecological systems (e.g., micro-, macro-, and meso-) that adolescents experience in their day-to-day lives (Bronfenbrenner, 1979). Microsystems include youths’ important relationships at home with parents and siblings, in school with teachers and peers, and in youths’ neighborhood with friends. Macrosystems of connectedness are the larger institutions in youths’ lives in which these microsystemic relationships and activities occur and include one’s neighborhood, family, school, religion, and cultural group. The mesosystems are those processes of connection that link micro- and macrosystems. For example, reading is one main mesosystem that links the home and school by orienting interpersonal connections. Reading is an activity that links the youth to school, teachers, and friends. Adolescent connectedness generalizes beyond immediate dyadic relationships (or microsystems) toward activities associated with these contexts, such as reading. In principle, using this same logic, one could suggest that smoking, drinking, and fighting (as something youth may participate in with friends) are mesosystems as well, but we restrict the term connectedness to types of affective and behavioral engagements that are (at least potentially) catalysts for positive youth development. And although connectedness to one’s friends and neighborhood can contribute to risk-taking behaviors, a sufficient degree of connectedness to friends and one’s neighborhood environment is essential to positive youth development. By comparison, because smoking and drinking do not provide a similar protective function

for youth, they are not form of connectedness included in our conceptualization.

The Continuum From Conventional to Unconventional Connectedness

Each of these worlds of connectedness can be characterized as falling somewhere along a continuum of conventionality. This concept of conventionality was initially proposed and described by R. Jessor and S. L. Jessor (1977), and it is used here as it is defined in the Oxford Compact English Dictionary: Convention refers to the “way in which something is usually done” and “socially acceptable behaviors” (Soanes, 2003, p. 234). Conventional means “following social convention; not individual or adventurous” (p. 234), where the conventions are those behavioral prescriptions set by adult society. Connectedness, then, can be characterized as either conventional (adult sanctioned) or unconventional (youth sanctioned).

Highly conventional worlds include those contexts, relationships, and activities that are structured, sanctioned, and supervised by adults. These conventional worlds of connectedness are antithetical to problem behaviors and risk taking (Donovan, R. Jessor, & Costa, 1988). Conventional connectedness typically includes the social worlds of school, teachers, reading, religion, and family—all of which are structured by adults and directed toward the future. Positive orientations toward and active involvement in all of these worlds serve to buffer against violence (Honora & Rolle, 2002; O'Donnell, Hawkins, & Abbott, 1995).

Conversely, connectedness to peers, friends, and the neighborhood may be conventional if the nature of these relationships and activities reflect attitudes and conventions prescribed by adults. However, this tends not to be the case for many youth (Karcher, 2003a). Due to its customarily unsupervised nature, connectedness to neighborhoods and time spent with peers, friends, romantic partners, and (for some) siblings is primarily unconventional. Being antithetical to adult conventions, unconventional connectedness often elicits activities that may lead to problem behaviors. The *unconventional* worlds of connectedness are those social ecologies in which youth themselves typically dictate the norms, activities, and structures that govern or dictate appropriate interaction. Youths' neighborhoods (for early adolescents), friendships, and romantic relationships (for older adolescents), are the most common examples of contexts/relationships in which unconventional connectedness develops and directs behaviors.

All adolescents need to achieve a minimum amount of connectedness across their social ecology and in both conventional and unconventional worlds. Problems typically emerge for those youth who are not able to establish suf-

ficient connectedness within the family, school, and other conventional contexts, relationships, and activities (e.g., reading). Youth at risk for academic underachievement often establish an imbalance, engaging in more unconventional than conventional connectedness.

Promoting connectedness in the school setting can serve to counterbalance the increasing importance of connectedness to peers, friends, and romantic partners during adolescence by providing an opportunity for conventionally disconnected youth to form connections with more conventional people, peers and adults, at school. Youth whose primary affections and engagement are with peers and friends engage in more unconventional, illicit behaviors and are more likely to denounce school and other conventional contexts and relationships. In contrast, youth who are actively involved in, enjoy, and feel positively about school are less likely to engage in violent behavior, substance use, and other related problems that interfere with academic success (Cernkovich & Giordana, 1992; Farrington, 1991; O'Donnell et al., 1995; Olin, 2001). For this reason, promoting active engagement in school and positive feelings about school (viz., connectedness to school) should be at least one of the primary targets of school-based violence prevention programs. Promoting connectedness to friends who engage more in conventional, prosocial behaviors, such as by encouraging students to participate in extracurricular activities, clubs, and organizations where friendships grow in the context of conventional activities should be another target of programs.

The Developmental Origins of Adolescent Connectedness

Connectedness has several likely precursors, including attachment to caregivers, relatedness to others, and feelings of belongingness within social groups. Karcher (2004) proposed that connectedness develops in reaction to (a) attachment, (b) interpersonal social support, and (c) group-level experiences of belonging (see Figure 39.1). We define connectedness as youth's active involvement and caring for other people, places, and activities. Connectedness is the reciprocation of the support and positive affect that other people have provided youth in specific places. This reciprocal process reveals an opportunity for structuring programs and experiences in schools that aim to promote connectedness.

Connectedness is not a feeling of belonging or relatedness; rather connectedness reflects an extension and reciprocation of basic attachment and bonding processes into the adolescents' widening social ecology. Like indicators of attachment, connectedness reflects proximity seeking (i.e., movement toward) and positive affect for people, places,

[AQ1]

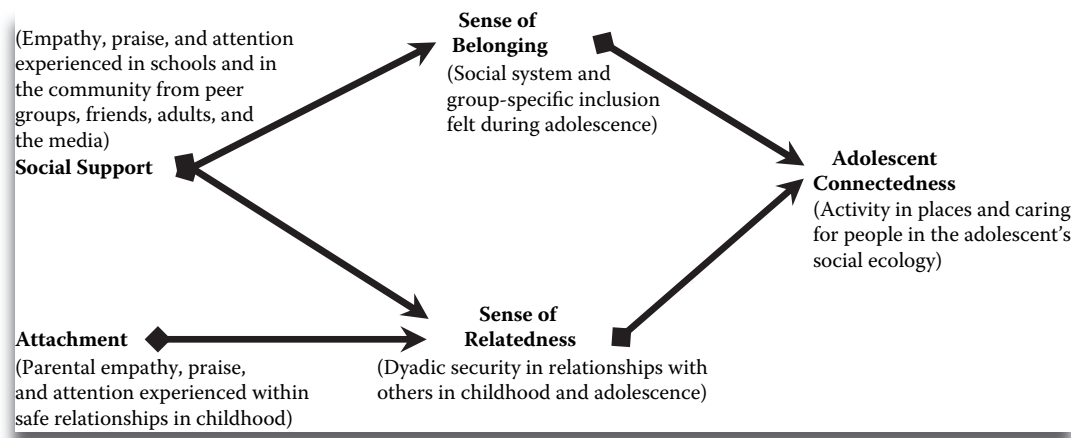


Figure 39.1 A hypothesized model of how attachment, social support, relatedness, and belonging contribute to adolescent connectedness.

and activities in the adolescent's life. This is an important definitional distinction. Connectedness is not a bond that is felt, but is a volitional, active "bonding" with other people, places, and activities. In this way, promoting connectedness in schools means not *only* "helping students feel supported" but *also* creating supportive conditions, such as through group work, activities, and collaborative learning, which acts to foster connections in the form of action-based, attitude-driven involvement in school.

Connectedness: The Reciprocation of Belonging, Relatedness, and Attachment

Connectedness has, as its source, positive relationships and experiences with others, and more specifically, relationships and experiences from which youth garner esteem and competence. Ideally, early in life, primary experiences of relatedness with caregivers result in positive attachments with caregivers and provide children with their initial sources of support, esteem, and praise (Ainsworth, 1989; Kohut, 1977). Later, other forms of social support build upon these early experiences, and provide interpersonal relatedness outside the family (e.g., teachers, peers, and friends) and experiences of group belonging beyond the family (see Figure 39.1). These socially supportive interactions usually result in positive feelings of relatedness and belonging. Youth reciprocate these feelings and "connect" with others by assigning them positive affect and seeking continued interaction with them (Baumeister & Leary, 1995). This reciprocation is similar to that of plugging in a power cord whereby one actively seeks out the source of connectedness (relatedness and belonging). Connectedness is not synonymous with relatedness and belonging; connectedness is a behavioral and attitudinal response to those feelings.

Attachment. Connectedness is present early in life in the caregiver-child bond. Attachment reflects the behav-

ioral reciprocation of affective experiences by the child to the caregiver through proximity seeking and positive affect (Chodorow, 1978; Stern, 1985). Like the toddler, the adolescent becomes connected to those social worlds that provide the adolescent the basic interpersonal ingredients of development—empathy, praise, and attention within relationships in which they receive clear, consistent structure (Ainsworth, 1989; Kohut, 1977; Kohut & Elson, 1987). Likewise, adolescents report positive affect and demonstrate proximity seeking most strongly toward those people—parents, siblings, peers, friends, or teachers—who have provided them with empathy, praise, and attention in a clear and consistent manner.

This is key to intervention and may explain why these qualities have been found in the most effective prevention programs (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2002; Schorr, 1988). Arguably, no amount of skills training or heightened knowledge will effectively curb risk taking among youth if such interventions are devoid of positive interpersonal relationships in which youth can feel competent, understood, and important.

Social support. Past and present levels of social support will affect youths' receptivity to interpersonal interventions. There is evidence that early attachment experiences predict individuals' openness to receiving help and willingness to accept social support during adolescence. For example, Mallinckrodt (1991) found that the quality of late adolescents' relationships with their families and with important nonfamily members were significant predictors of the quality of their therapeutic working alliance. The author argued, "[T]he ability to meaningfully connect with others is presumed to be a good indicator of their capacity to form productive working alliances" (p. 402). Therefore, adolescents' ability to benefit from social support will be constrained by the quality of their experiences with other people (Lee & Davis, 2000), such that those who have received the least social support in the past may be

the hardest to reach by school counselors. Indeed, others have found that aggressive youth who overestimate their social relatedness (and report excessively high self-esteem) can be the most difficult to reach through interventions (Prasad-Gaur, Hughes, & Cavell, 2001). Relatedness and belonging are two indicators of how open youth may be to receiving social support from others.

Relatedness. Relatedness is the felt sense of closeness and of being valued by another individual. Relatedness is determined, in part, by the security youth experienced in early caregiver-child relationships, and relatedness predicts the degree to which youth will seek interpersonal connection in later relationships with peers, friends, and teachers (Kuperminc, Blatt, & Leadbeater, 1997). Hagerty et al. (1993) suggested that relatedness is a “functional, behavioral system rooted in early attachment behaviors and patterns,” such that “affiliation or exploration are activated only after the attachment behavioral system” (p. 292). Breaks in relatedness, such as through forced separations, undermine connectedness by lessening youths’ willingness to invest time and energy in relationships with others (Richters & Martinez, 1993; Kuperminc et al., 1997). For example, Midgley, Feldlaufer, and Eccles (1989) reported that students who moved from elementary classrooms where they experienced high teacher support to middle school classrooms where they perceived less teacher support showed decreases in their interest in learning. In short, undermined relatedness creates a lapse in connectedness. When teachers do not provide consistent sources of empathy, praise, and attention, as well as a clear, consistent structure, youth will become less involved in school and will become less inclined to establish conventional school-based relationships (van Aken & Asendorpf, 1997).

Belonging. When relatedness occurs in groups of people or in defined contexts, the result is the experience of belonging. Belonging is of paramount importance to adolescents. The need to belong is defined, not as the need to be the passive recipient of supportive relationships, but as the need for “frequent [positive and pleasing] interaction plus persistent caring” (Baumeister & Leary, 1995). Hagerty et al. (1993) described connectedness to others, as well as to organizations and their activities, as a reciprocation of experienced belonging and relatedness that has, directly or indirectly, primary attachment relationships at its source. How accepted and valued a youth feels by a particular group shapes how connected, involved, and concerned that youth will be with people and activities in that organization. This is because youth confirm and acknowledge their experience of belonging by becoming connected through increased interaction and caring for other people and places (see Figure 39.1).

Defined from an ecological point of view, then, adolescent connectedness reflects a youth’s volitional involvement in relationships, contexts, and activities that he or she deems positive, worthwhile, and important. As a reciprocation of one’s positive experiences of relatedness and belonging with others in particular places, connectedness is a function of the social support presented to individuals, his or her openness to receiving that social support, and security in those relationships and contexts. School staff and peers can vary the social support they provide to students; however, they cannot as easily change students’ openness to receiving that social support. Receptivity to social support is partly driven by prior experiences with others, including early interactions with caregivers. In addition, openness to social support is influenced by recent and current experiences of exclusion or inclusion from groups, teams, relationships, or failures (e.g., academic) which suggest to youth whether others view him or her as positive, worthwhile, and important.

Three Additional Dimensions Key to Understanding Connectedness in Schools

Many school counselors work with a student body that reflects a great deal of ethnic, racial, and socioeconomic diversity. Increased immigration from countries whose cultural beliefs differ from middle-class American and White Protestant values encourages school counselors to think more broadly about how adolescents experience connectedness as a function of their cultural backgrounds. Three key dimensions that need to be considered are time orientation, collectivism versus individualism, and familism, all of which will influence how the school counselor’s efforts to promote assets and connectedness are understood and received by students.

The temporal nature of connectedness: Present and future-oriented connectedness. Distinctions between conventional and unconventional connectedness parallel, but are distinct from, future- versus present-oriented connectedness. Just as connectedness may have both protective and risk-promoting properties, depending on those to whom or what place the connectedness refers, most places and relationships can be considered to be future or present oriented. Time with friends and family tend to be present oriented, both focusing on the here and now; whereas time spent in school, with teachers, and to some degree even in religious practice, are more oriented to the future. Future oriented connectedness tends to serve as a protective factor in adolescent development by buffering difficult circumstances and inhibiting impulsive, risky behavior that could pose negative consequences on future opportunities.

Collectivistic versus individualistic connectedness. Some manifestations of connectedness reflect a relational emphasis, while others reflect a primarily self-oriented, individualistic emphasis (Cooper, 1999). For example, connectedness to schools is largely a reflection of attitudes toward individual achievement. Students feel positive, worthwhile, and important in large part as a function of the assessment process conducted by schools and teachers. By contrast, in families, friendships, neighborhoods, and romantic relationships, interdependent efforts and attention to relationships are deemed more positive, worthwhile, and important.

Familial versus nonfamilial connectedness. Some cultural groups make primary distinctions between family and nonfamily worlds, instead of between youth worlds and adult worlds (as is typical in the United States). For example, in Taiwan, confirmatory factor analyses of the connectedness scales indicate that family/nonfamily is a better way to characterize the nature of adolescent connectedness than youth/adult-focused connectedness (Karcher & Lee, 2002).

The Shape of Adolescent Connectedness

By plotting an individual or group of students' scale mean scores on a two-dimensional diagram that reflects each of the connectedness dimensions described previously, the shape of a youth's or group's overall connectedness can be represented graphically. The diagram in Figure 39.2 [AQ2] arranges each of the connectedness scales according to these dimensions. In the center of the diagram is *one* (on a one to five metric scale) referring to the lowest possible score. Each scale has a corresponding line that goes outward from the center to a maximum of five. Placing a dot where each group or individual's mean for each scale falls, and then connecting the dots around the center, allows one to see how the "shape" of adolescent connectedness.

A triangle can be used to capture this shape by connecting with straight lines just the Family, School, and Friends mean scores for an individual or group. The different shapes of the connectedness triangle convey different emphases. For example, in Figure 39.3, each of three different triangles reflects the plotting of the Friends, Family, and School scales for a different pattern or connection. [AQ3]

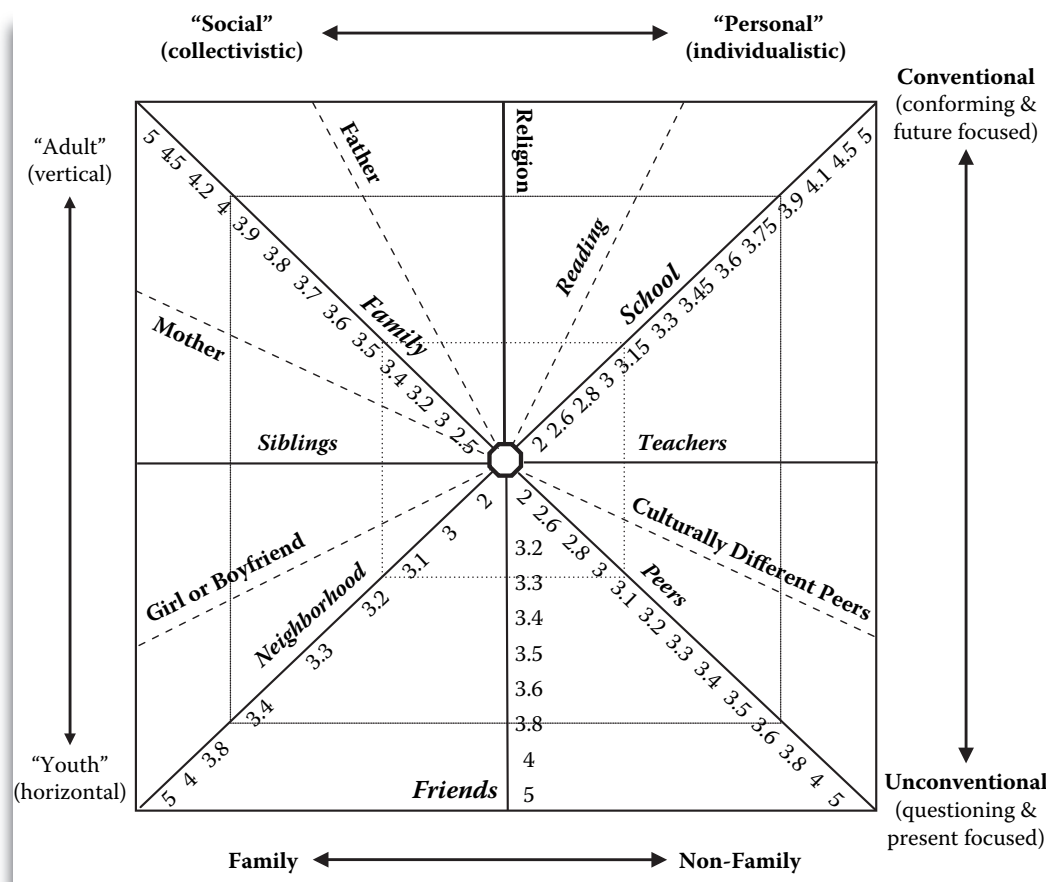


Figure 39.2 A means of plotting the ecology of adolescent connectedness by its dimensions.

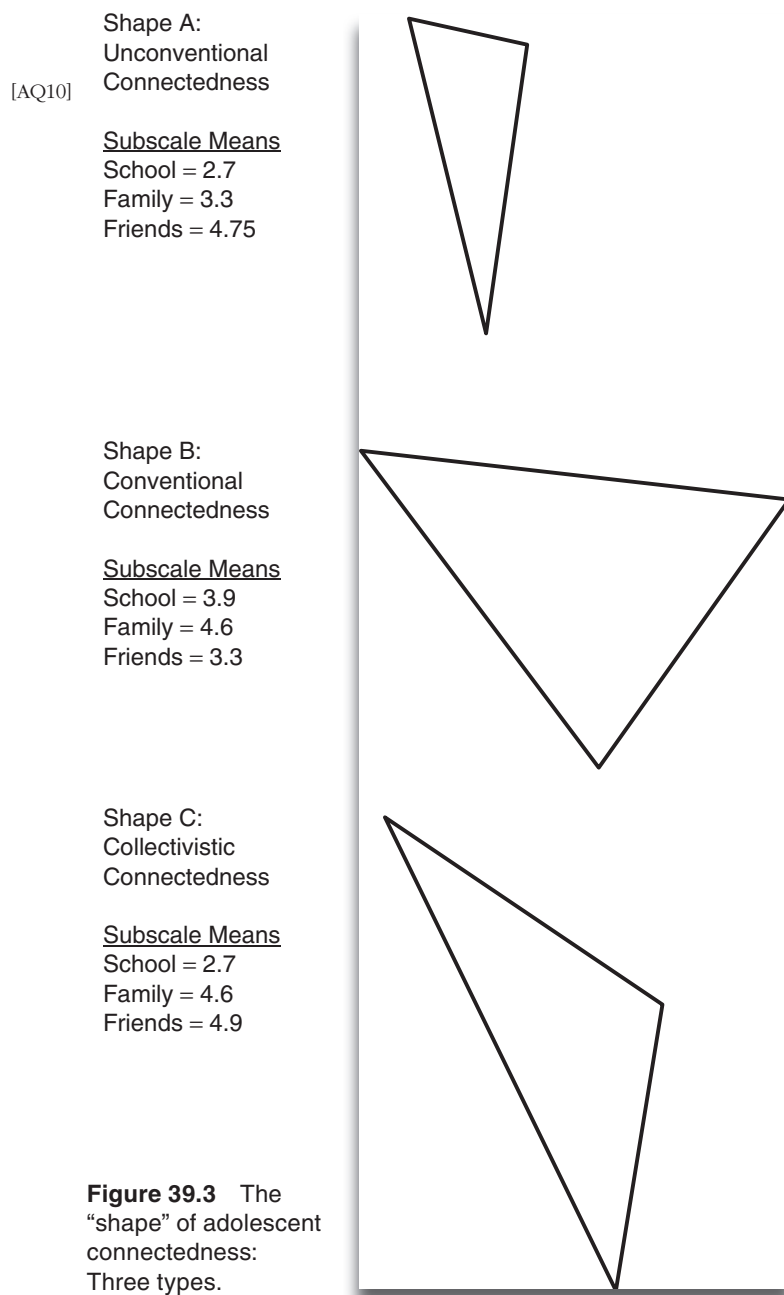


Figure 39.3 The “shape” of adolescent connectedness: Three types.

Shape A in Figure 39.3 reveals that this particular youth prioritizes unconventional connectedness, because the youth rated his or her connectedness to friends and neighborhood as 4.8 out of a 5-point scale, while both conventional worlds of parent and school connectedness were rated below 3 ($M = 2.4$). Such a youth is likely quite vulnerable to peer pressure, and vis-à-vis, to risk-taking behavior and underachievement (especially when the youth’s friends are also highly unconventional in their connectedness). This youth needs help increasing connections with adults and, therefore, may be a good candidate for having a mentor. Receiving extra atten-

tion from teachers and being given additional opportunities to interact in adult-oriented contexts also may provide positive experiences that make the youth feel important, valued, and seen as worthwhile by adults.

In contrast, Shape B highlights the importance this youth places on school and family connections (which share conventionality—viz., adult-oriented connections) over unconventional connectedness to friends, neighborhood, and peers. Some counselors might not view this child as having a problem. Certainly, this is not the type of youth typically referred by parents or teachers for presenting as disconnected, disobedient, or disengaged. However, the virtual absence of any connection with peers does not work to facilitate social skills and peer-based self-esteem. More than likely, this youth demonstrates lower than average social skills or high peer stigmatization that may in fact render the youth at risk for extreme, isolation-related, aggressive outbursts or at least for an unsatisfactory developmental experience with peers.

Shape C conveys a more collectivistic (friend and family) oriented connectedness because individualistic connections (school) were rated lowest. Children whose parents have little experience of postsecondary education, and by extension, many ethnic minority youth, may more often report this pattern of connectedness if their families are not able to model and strongly encourage individualistic achievement at school. Such youth may be more vulnerable to the long-term consequences of de-emphasizing the type of school-based, conventional connections that would help them secure future opportunities for employment or academic achievement. In regards to the particular student in Shape C, there may not be an immediate problem. However, the absence of future-oriented and individualistic connectedness presents warning signs. Such youth should be encouraged to participate in school programs (e.g., sports, extramural, or after-school academic enrichment) in order to help them feel positive, worthwhile, and important at school. These activities can provide opportunities to experience relatedness and belonging to which students can *reciprocate* through increased connection to school.

A Summary of the Theory of Adolescent Connectedness

Drawing on theories of problem behavior, belonging and attachment, and ecological development, we describe adolescent connectedness as an ecologically specific form of engagement with others and the environment. It occurs in response to feelings of belonging and relatedness, which can be fostered by increasing the social support a youth encounters in specific contexts and relationships. Building on the phenomenon of connectedness as a reciprocation of social support, the school counselor’s main leverage gained

by using this construct may come through applying the principle of connectedness compensation. In doing so, the counselor may encourage youth to participate in activities that boost conventional connectedness for those reporting a disproportionately high level of unconventional connectedness (Shape A), and vice versa. The starting place for such work, however, is for the school counselor to understand the behavioral consequences of disconnection in each world and to have tools that can be used to assess students' connectedness. One such tool is the connectedness diagram just described, which provides a way for students to see the shape of their connectedness in terms of the following dimensions: (a) conventional (adult sanctioned) and unconventional (youth sanctioned) connectedness, (b) present-focused and future-oriented connectedness, (c) collectivistic and individualistic connections, and (d) family and nonfamily connections. By considering the interplay of these connectedness dimensions, and creating opportunities for youth to better understand the "shape" of their own ecology of connectedness, school counselors may be better able to target meaningful interventions for youth and measure important postintervention changes in the adolescents' connectedness. Being successful at both, however, assumes the school counselor has a grasp of the research on connectedness and a valid assessment tool handy.

Research

Establishing and maintaining connectedness to others, to society, and to oneself is a pervasive human concern (Baumeister & Leary, 1995; Gilligan, 1982; Hagerty et al., 1993; Kohut, 1977; Nakkula & Selman, 1991). Baumeister and Leary proposed, 25 years after Maslow (1968) described belongingness as the third most fundamental need of the self, that belongingness is perhaps the most important psychological resource for overall human well-being.

Adolescents Need a Balance of Connectedness Across Their Social Ecology

Connectedness is a function of the need to belong, such that when an individual in one social ecology does not experience belonging and relatedness, he or she will become more connected to other social ecologies as a compensatory act (Baumeister & Leary, 1995). For example, research confirms that when disconnection occurs with family members, connectedness with friends may increase; when adolescents become disconnected from school, they often seek connectedness outside of school in their neighborhood (see Joo & Han, 2000; Hirschi, 1969). Other research suggests that adolescents' sense of self is born out of these sometimes divergent connections to fam-

ily, teachers, friends, and peers (Buhrmester, 1990; DuBois et al., 1996) which facilitate the development of a sense of oneself in the present as well as oneself in the future.

An Emphasis on Unconventional Over Conventional Connectedness Promotes Risk Taking

Because connectedness reflects the presence (often in the form of expectations) of such profoundly important experiences as relatedness and belonging, connectedness has been linked to physical health, clinical disorders, and risk-taking behaviors (Bonny, Britto, Klostermann, Hornung, & Slap, 2000; Hendry & Reid, 2000; Lee & Robbins, 1998; Resnick et al., 1993). A long line of research on delinquency and violent behavior among youth shows that connectedness and alienation are intimately linked with problem behaviors (Hawkins, Catalano, & Miller, 1992; Hirschi, 1969; R. Jessor & S. L. Jessor, 1977), and therefore provide important targets for effective prevention programs in schools (Allen, Kuperminc, Philliber, & Herre, 1994; Hawkins, Von Cleve, & Catalano, 1991; Jason & Kobayashi, 1995; R. Jessor, 1992).

Not all forms of connectedness decrease risky behavior, however, because the protective functions of connectedness vary across the relationships and contexts of adolescents' lives. Depending on the individual youth and his or her specific set of peers, connectedness to peers can reflect the conventions of either the adult world or the unsupervised activities and norms of the adolescent world. As one good example, it is commonly believed that peer relationships facilitate misbehavior through processes of negative peer pressure, yet research shows that associating with conventional peers is one of the best protective factors against violent behavior (Hawkins, Farrington, & Catalano, 1998; Hawkins et al., 1991; Olin, 2001).

Connectedness to friends, however, is usually positively correlated with risk taking (Karcher, 2002; Karcher & Finn, 2005). Although connectedness to friends could be called conventional because most parents/adult caretakers want their children to have friends, connectedness to friends serves a different function than connectedness to school or family does.

Adolescents who describe positive relationships with parents and teachers show greater adaptation to school in terms of their academic coping, engagement, self-regulation, and perceived control. Relationships with friends are generally unrelated to these outcomes, suggesting the different functional significance of students' relationships during early adolescence. In addition, adolescents who strongly identify with parents and teachers show more positive school adjustment and motivation, whereas

emulation of friends is negatively related to these variables. (Lynch & Cicchetti, 1997, pp. 83–84)

Therefore connectedness to friends has *both* positive and negative effects on adolescent development and behavior. On one hand, any connectedness to friends is better than no connectedness at all in terms of promoting social development, avoiding experiences of alienation, and preventing aggression (Collins, 2002; Nakkula & Selman, 1991). On the other hand, when connectedness to friends is high, but connectedness to school or family low, this imbalance increases youths' risk for engaging in risk taking and misbehavior (R. Jessor, 1993).

More recently, Dishion, R. Jessor, and others (i.e., Dishion, McCord, & Poulin, 1999; R. Jessor, 1992; Patterson, Dishion, & Yoerger, 2000) have found that spending unsupervised time in one's neighborhood, with friends, or in other youth-governed contexts increases the risk that a youth will engage in unconventional behaviors. Taken to the extreme, unconventional connectedness can lead to activities that are unlawful and potentially damaging to self and others (R. Jessor & S. L. Jessor, 1977). Behaviors, such as stealing, drinking, delinquency, and violence, are most common when strong connectedness to friends is not balanced by equally strong connectedness to school or to family (Hirschi, 1969; Olin, 2001). In this way, conventional connectedness serves as a control against nonnormative, antisocial, illicit, and aggressive behaviors (Hirschi, 1969).

School Counselors Should Avoid Grouping Highly Unconventional Youth

The conventionality phenomenon presents an important consideration for school counselors when choosing members for group counseling. Although formally screening youth in order to identify appropriate candidates for school counseling groups or other interventions has not been a standard practice in school counseling (Ripley & Goodnough, 2001; Sullivan & Wright, 2002), there is persuasive research suggesting that it should be. For example, Dishion et al. (1999) presented surprising findings from a 30-year study of comprehensive services provided to youth at risk for delinquency. Analyses revealed that the long-term impact of aggregating at-risk youth within groups (e.g., in a counseling group) was to *increase* delinquency, regardless of the efforts of the counselors. Given this, it is wise to selectively include within group counseling both those youth at risk for specific problems and those not at risk. In terms of the connectedness framework, this means school counselors should include youth who report both high and low levels of unconventional connectedness as opposed to targeting and aggregating unconventionally connected youth within the group counseling setting.

The Promise and Perils of Connectedness Compensation

There appears to be an interaction between forms of conventional and unconventional connectedness, such that when connectedness is not achieved in one context it is overemphasized in others (Ainsworth, 1989). Baumeister and Leary (1995) argued that because the need to belong is so pervasive, there is a compensatory function which allows the absence of belonging in one ecology (e.g., family) to be countered by belonging in another (e.g., friends). They stated,

[R]elationships should substitute for each other, to some extent, as would be indicated by effective replacement of lost relationships partners and by a capacity for social relatedness in one sphere to overcome potential ill effects of social deprivation in another. (p. 500)

Although the absence of conventional connectedness with one parent can be compensated by connectedness with the other, unconventional connectedness cannot take the place of absent parental connectedness (van Aken & Asendorpf, 1997). The intervention opportunity presented by this compensatory function is the possibility for conventional experiences and relationships, such as in after-school programs or through natural mentoring by teachers (DuBois & Silverthorn, 2005), to compensate for prior deprivations of conventional connectedness that resulted from poor parental bonding, peer rejection, or school failure and underachievement.

The Ecology of Connectedness Widens and Becomes More Unconventional During Adolescence

R. Jessor and S. L. Jessor (1977) found that, as the adolescent's ecology widens, so too do the opportunities to engage both in unconventional behaviors that are encouraged by peers (e.g., risk-taking behaviors) and in contexts not governed by parents (e.g., the neighborhood). This is partly because of normative declines in conventional behaviors (e.g., reading, working at school, and spending time with family) relative to the increased opportunities to spend time with friends.

In several studies, both with adolescent samples from the United States and Asia, it appears that conventional connectedness declines during adolescence while unconventional connectedness increases (Karcher, 2003a; Karcher & Lee, 2002). These differences in mean levels of connectedness across the adolescent social ecology over time are illustrated in Table 39.1. This table is based on data from 342 students from a Midwestern town who completed both

[AQ4]

Table 39.1 Connectedness Report: District Profile of Average Level of Connectedness by Sex, Grade, & Related Developmental Asset.

Connectedness Domain	Developmental Asset	Conn. for kids with/out asset		Average Level by Sex		Mean Level of Connectedness in Each Grade								α (#)
		Does not have	Does have asset	Girls	Boys	6th	7th	8th	9th	10th	11th	12th		
School Connectedness: Future-oriented, Conventional	Akin Asset:													
<i>School:</i> Involvement in and positive feelings toward school	24. Bonding to School (5)	3.2	3.7 (72%)	3.5	3.2	3.8	3.5	3.5	3.5	3.3	3.4	3.3	.84	(6)
<i>Teachers:</i> Caring for; wanting respect; working to gain trust	14. Adult Role Models	3.5	3.7 (83%)	3.7	3.5	3.8	3.6	3.6	3.5	3.5	3.5	3.6	.83	(5)
<i>Reading:</i> Reading regularly, independently, and for fun	25. Reading for Pleasure	2.5	3.4 (88%)	2.8	2.5	3.3	2.9	3.0	2.8	2.8	2.9	3.0	.92	(4)
<i>Peers:</i> Can work cooperatively with and likes one's own peers	15. Pos. Peer Influence	3.0	3.4 (68%)	3.3	3.1	3.1	3.2	3.3	3.2	3.2	3.2	3.3	.74	(6)
<i>Culturally different peers:</i> Interest in and values diversity	34. Cultural Competence	3.2	4.3 (85%)	3.9	3.6	4.0	3.6	3.6	3.6	3.9	3.7	3.9	.91	(3)
Self-Perception: Temporal	Akin Asset:	Don't have	Does have	Girls	Boys	6th	7th	8th	9th	10th	11th	12th	α (#)	
<i>Self-in-the Future:</i> Actively working toward hopeful future	37. Personal Power (& 40)	3.6	4.2 (62%)	3.9	3.8	4.0	4.0	3.8	3.7	3.7	3.7	4.0	.79	(5)
<i>Self-in-the-present:</i> Feels esteemed, unique, likeable	38. Self-Esteem (17)	3.2	3.7 (71%)	3.4	3.4	3.5	3.5	3.5	3.3	3.3	3.3	3.4	.78	(5)
Social Connectedness: Present Oriented, Unconventional	Akin Asset:	Don't have	Does have	Girls	Boys	6th	7th	8th	9th	10th	11th	12th	α (#)	
<i>Friends:</i> Trusts, spends time with, & talks openly w/ friends	33. "Social" Competence	3.4	3.7 (72%)	3.7	3.4	3.7	3.7	3.7	3.3	3.4	3.5	3.6	.85	(6)
<i>Neighborhood:</i> Activity in and sense of safety & belonging	20. (-) Time at home (10 Safe)	3.5	3.2 (-63%)	3.3	3.4	3.7	3.4	3.3	3.2	3.2	3.1	3.2	.80	(6)
<i>Romantic partner:</i> Has, relies on, values boyfriend/girlfriend	31. Restraint	3.5	2.7 (67%)	3.3	2.9	3.2	3.2	3.0	2.8	2.9	3.3	3.2	.95	(4)

(Continued)

[AQ14] Table 39.1 Continued

Connectedness Domain	Developmental Asset	Conn. for kids with/out asset		Average Level by Sex		Mean Level of Connectedness in Each Grade							α (#)
		Don't have	Does have	Girls	Boys	6th	7th	8th	9th	10th	11th	12th	
Family Connectedness: Present-oriented, Conventional	Akin Asset:												
Parents: Spends time with, wants trust, cares for	1. Family Support	3.3	4.0 (77%)	3.7	3.6	3.9	3.6	3.7	3.7	3.4	3.6	3.6	.83 (6)
Mother: Fees close to, cares for, & communicates well with	2. Positive Fam. Comm.	3.6	4.2 (77%)	3.9	3.8	4.3	4.0	3.7	3.8	3.9	3.7	3.8	.83 (4)
Father: Fees close to, cares for, & communicates well with	2. Positive Fam. Comm.	3.3	4.1 (76%)	3.9	3.8	3.9	4.0	3.8	3.5	3.5	3.4	3.7	.86 (4)
Siblings: Frequent, enjoyable contact with siblings	1. Family Support	2.8	3.3 (70%)	3.5	3.0	3.2	3.0	3.0	3.2	3.0	2.9	2.9	.89 (5)

Notes: α = scale reliability (<.70 fair; .70 – .79 good; >.80 very good); * significant sex differences.

Scale Anchors: 1 = Not at all true; No 2 = Not really true; 3 = Sort of true; 4 = True; 5 = Very true;

Low connectedness includes anchors 1–3 (Mean < 3.5) and High connectedness includes anchors 4–5 (Mean > 3.5)

the Hemingway measure and the SEARCH Developmental Assets survey. The students were equally divided between 6th and 12th grade. The majority were Caucasian ($n = 265$) and 185 were female. For the present purpose, notice mean changes among students in connectedness to school between 6th, 9th, and 12th grades, which go from 3.8 to 3.5 to 3.3 during that time period (with 5 being very connected and 1 being very disconnected). Similarly, changes in connectedness to parents are 3.9 to 3.7 to 3.6 during this time. This is expectable as increased freedom and mobility invite increased time spent with friends, peers, and romantic partners during adolescence. It also suggests that an *imbalance* between conventional and unconventional connectedness is *normal* in adolescence.

Girls Usually Report Higher Levels of Connectedness Than Boys Do

Gender differences have received perhaps the most attention within the research on connectedness even though many of the studies of connectedness actually measured belonging. Statistical tests of the hypothesis that girls report greater relatedness and belonging than boys has been the focus on much research (e.g., Lang-Takac & Osterweil, 1992), but empirical studies of “connectedness” that used measures of belonging and relatedness (rather than

of connectedness) have failed to consistently reveal clear gender differences (Hagerty et al., 1993; Harter, Waters, Pettit, Kofkin, & Jordan, 1997; Jacobson & Rowe, 1999; Lee, Keough, & Seagal, 1999; Lee & Robbins, 1995). In most studies using the connectedness measure described in the following section, girls scored higher on all of the scales of connectedness except the connectedness to self-scales (Karcher, 2002, 2003a; Karcher & Lee, 2002; Karcher & Finn, 2005). Consistent with these findings, Table 39.1 reveals the girls in our Midwestern sample of 342 middle and high school students reported greater connectedness than boys did. This may be interpreted to mean that while experiences of belonging and relatedness may not differ between adolescent boys and girls, their response to these feelings—that is, their efforts to connect with others—appear to be stronger for girls than boys. These differences, however, may only be detected with a measure of adolescents’ *engagement* (i.e., of connectedness) rather than of belongingness or relatedness.

A Description of the Hemingway: Measure of Adolescent Connectedness

The Hemingway Measure of Adolescent Connectedness is a self-report instrument that includes scales that assess engagement through caring for and involvement in close

relationships and important contexts. The Hemingway consists of 78 items that are averaged to create scales for 15 ecological worlds and four composite scales. The 15 scales fall into three dimensions of connectedness: self, others, and society. *Connectedness to self* includes 2 scales: (1) positive feelings about the self in the present (e.g., self-esteem; DuBois et al., 1996; Harter, 1999) and (2) sense of one's self in the future (Nakkula & Selman, 1991). *Connectedness to others* included 5 scales: connectedness to (3) parents, (4) friends, (5) teachers, (6) siblings, and (7) peers. Because the scales measuring connectedness to religion, race, and romance are sometimes problematic for school administrators, both short and long versions were created. Connectedness to others scales which are included only in the longer version are connectedness to one's (8) mother, (9) father, (10) a romantic partner, and (11) culturally different peers. *Connectedness to society* includes scales measuring connectedness to (12) school, (13) neighborhood, and (14) reading. Included only in the longer version is the (15) connectedness to religion scale. The 4 composite scales reflect the mean of all scale items in each of 4 domains: family (parents and sibling items), friends (friends and neighborhood items), school (school and teacher items), and self (present and future self items).

The psychometric properties of the scales across several samples as well as findings from multiple validity studies can be found in the manual and validity study (Karcher, 2001, 2003b), which is available upon request from Karcher (this chapter). In addition, in the last column in Table 39.1, reliability estimates for the sample used for the analyses discussed previously are reported.

Scoring. Responses to each of the items are made using a 5-point, Likert-type response scale which ranges from (1) not true at all, (2) not really true, (3) sort of true, (4) true, to (5) very true. There is at least one reverse-scored item in each scale (identified in bold in Table 39.2). The items within each of the 15 scales are averaged (once the reverse worded items are reverse-scored) to get separate scale score means.

The Hemingway is one of few self-report measures of adolescent connectedness that has undergone considerable empirical scrutiny and that has generated considerable validity evidence (Karcher, 2003a). The measure was developed through a series of exploratory and confirmatory factor analyses, which revealed the same structure of adolescent connectedness across several samples in the United States. This structure was used to create Figure 39.2. Karcher (2003a) found three underlying factors or scale groupings in multiple adolescent samples in the United States. These are unconventional connectedness, academic connectedness, and family connectedness, which reflect the three corners of the triangle in the Connectedness

Table 39.2 Items for Several Scales of the Hemingway Measure of Adolescent Connectedness

Scale Items—Reverse score items 2, 7, 13, 18, 26, 30, 34, 45, 51, 55, 64, 70, 71

Neighborhood (6 items)

- (1) I like hanging out around where I live (like my neighborhood).
- (11) I spend a lot of time with kids around where I live.
- (21) I get along with the kids in my neighborhood.
- (31) I often spend time playing or doing things in my neighborhood.
- (41) I hang out a lot with kids in my neighborhood.
- (51) **My neighborhood is boring.**

Friends (6 items)

- (2) **Spending time with friends is not so important to me.**
- (12) I have friends I'm really close to and trust completely.
- (22) Spending time with my friends is a big part of my life.
- (32) My friends and I talk openly with each other about personal things.
- (42) I spend as much time as I can with my friends.
- (52) My friends and I spend a lot of time talking about things.

Self-in-the-present (6 items)

- (3) I can name 5 things that others like about me.
- (13) **There is not much that is unique or special about me.**
- (23) I can name 3 things that other kids like about me.
- (33) I really like who I am.
- (43) I have special hobbies, skills, or talents.
- (53) I have unique interests or skills that make me interesting.

Parents (6 items)

- (4) My family has fun together.
- (14) It is important that my parents trust me.
- (24) I enjoy spending time with my parents.
- (34) **My parents and I disagree about many things.**
- (44) My parents and I get along well.
- (54) I care about my parents very much.

Siblings (5 items)

- (5) I have a lot of fun with my brother(s) or sister(s).
- (15) I feel close to my brother(s) or sister(s).
- (25) I enjoy spending time with my brothers/sisters.
- (35) I try to spend time with my brothers/sisters when I can.
- (45) **I try to avoid being around my brother/sister(s).**

School (6 items)

- (6) I work hard at school.
- (16) I enjoy being at school.
- (26) **I get bored in school a lot.**
- (36) I do well in school.
- (46) I feel good about myself when I am at school.
- (56) Doing well in school is important to me.

(Continued)

[AQ5]

Table 39.2 Continued

[AQ18]	<p style="text-align: center;">Peers (6 items)</p> <p>(7) My classmates often bother me.</p> <p>(17) I like pretty much all of the other kids in my grade.</p> <p>(27) I like working with my classmates.</p> <p>(37) I get along well with the other students in my classes.</p> <p>(47) I am liked by my classmates.</p> <p>(57) I rarely fight or argue with the other kids at school.</p> <p style="text-align: center;">Teachers (6 items)</p> <p>(8) I care what my teachers think of me.</p> <p>(18) I do not get along with some of my teachers.</p> <p>(28) I want to be respected by my teachers.</p> <p>(38) I try to get along with my teachers.</p> <p>(48) I always try hard to earn my teachers' trust.</p> <p>(50) I usually like my teachers.</p> <p style="text-align: center;">Self-in-the-Future (6 items)</p> <p>(9) I will have a good future.</p> <p>(19) Doing well in school will help me in the future.</p> <p>(29) I do things outside of school to prepare for my future.</p> <p>(39) I do lots of things to prepare for my future.</p> <p>(49) I think about my future often.</p> <p>(55) What I do now will not affect my future.</p> <p style="text-align: center;">Reading (4 items)</p> <p>(10) I enjoy spending time by myself reading.</p> <p>(20) I like to read.</p> <p>(30) I never read books in my free time.</p> <p>(40) I often read when I have free time.</p> <p style="text-align: center;">Kids from other cultures (3 items)</p> <p>(60) I like getting to know kids from other cultural or racial groups.</p> <p>(65) I would like to know more people from different cultural groups.</p> <p>(69) I like getting to know people who are culturally different from me.</p>
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Diagram. The *unconventional connectedness* factor includes connectedness to friends, the neighborhood, a self-in-the-present, and romantic partner. The *school connectedness* factor includes connectedness to school, teachers, peers, culturally different peers, reading, and self-in-the-future. The *family connectedness* factor includes the connectedness to parents, siblings, mother, father, and religion.

The scales in each of these three factors also can be characterized in terms of the dimensions or continuum described earlier: *temporality*, *conventionality*, and *relational orientation* (collectivist/individualist; family/nonfamily). The items in each of the scales reflect the two primary means of connection—through activity or involvement and through caring (e.g., “I work hard at school” and “I enjoy being at school”). These scales also reflect a time orientation. The family and social scales are generally present ori-

ented, and the academic and personal scales are typically future oriented. Scales either measure conventional, adult-mediated behaviors and attitudes that are vertical (adult-driven) and future-oriented or unconventional behaviors and attitudes that are horizontal (peer-driven) and questioning and which reflect youth-directed behaviors and youth-specific attitudes in the present. Finally, the collectivistic and family-oriented scales emphasize larger groups and social hierarchy, and conversely, the individualistic, nonfamily, and future oriented scales reflect individual (self-directed) connections and achievement. These continua are presented as two-way arrows in Figure 39.2.

The Value of Connectedness in Predicting Assets

We believe the Hemingway connectedness measure can facilitate the use of the Developmental Assets framework and survey by providing an interim or proxy measure of assets. Here we provide just three examples of this. First, in Figure 39.2, the two concentric squares (thin lines) reflect the mean scale scores for two groups of youth from a Midwestern sample of 224 middle and high school aged youth. A sample of youth who completed both the SEARCH Institutes A/B Assets Survey and the Hemingway: Measure of Adolescent Connectedness sample was divided into three groups: low, medium, and high internal assets. The inside line reflects the mean for youth reporting low (fewest) internal assets, and the second line reflects the mean scale score for youth reporting many high (the most) developmental assets. These lines provide one gauge of whether a given youth or group's scale score should be considered low or high (keeping in mind that girls tend to report .15 to .30 higher mean scores than boys on most scales; see Table 39.1).

Second, we can compare scores on specific connectedness scales with the presence/absence of similar developmental assets. One important asset is the “Adult Role Models” asset. Using data from the same Midwestern sample described earlier, we could reliably predict (with 83% accuracy using logistic regression) the presence or absence of this asset from the youth's mean scale score on the connectedness to teachers scale (see second Row in Table 39.1). Table 39.1 illustrates the prediction accuracy of several key Developmental Assets from related connectedness scales. The first two columns of numbers indicate the mean on each connectedness scale for youth who *did* or who *did not* have the related asset. In parentheses is the degree of predictive accuracy. For example, connectedness to reading scores predicted the presence or absence of the asset “Reading for Pleasure” with 88% accuracy. The connectedness to religion scale predicted having the Religious Community asset with 84% accuracy. In short, several of

the connectedness scales can serve as reliable proxy measures of specific assets.

For a given school district, the relationship between Developmental Assets and connectedness may be linked in order to identify targets for interventions or guidance program goals. For example, in Figure 39.4, the means for connectedness to teachers at each grade were plotted for those who did and did not report having the asset “Com-

munity Values Youth,” which assesses whether or not students perceive that adults in their community value youth. Across all grades, youth whose means on the connectedness to teachers scale was low (e.g., between 3.4–3.5) did not feel their community valued youth. How much improvement in connectedness to teachers would indicate that students in general did feel youth were valued by adults in the community? Well, this depends on the grade, because the

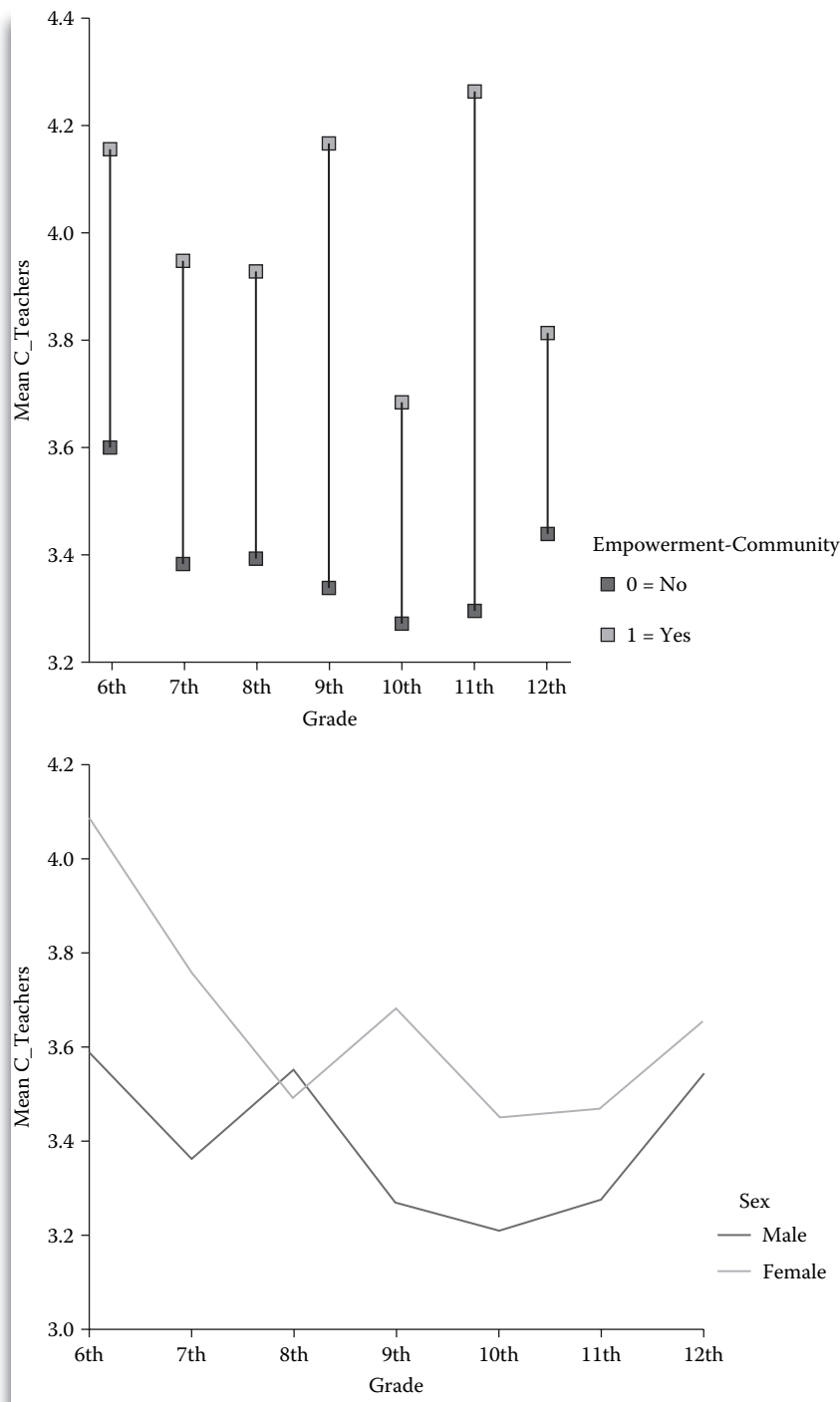


Figure 39.4 Two charts of connectedness to teachers across adolescence by assets and sex.

mean level of connectedness to teachers among youth who had the “Community Values Youth” asset ranged from 3.7 in 10th grade to 4.3 in 11th grade. However, a good range to set as a goal to measure the success of an intervention to increase this asset among students might be to have the majority of youth score between 3.8 and 4.2, depending on the grade. A school district could begin a campaign to promote feeling valued by starting with teacher relationships in the school but extending efforts beyond the school as well, and measure changes in connectedness to teachers every semester until that goal is achieved.

Charting Developmental Trends for Boys and Girls Across Grades to Identify Program Goals

Another way to use research to link the Developmental Assets and connectedness scales in a manner that can help school counselors plan guidance activities and program objectives is to plot connectedness scales for boys and girls across grades. In the second chart in Figure 39.4, we see that girls report greater connectedness to teachers, but similar to boys, the girls show declines in connectedness to teachers from middle school to high school. By 11th grade, both boys and girls (those who have not dropped out, of course) are beginning to report more connectedness to teachers. The gap between the sexes is largest in 6th and 9th grades in this school district, which is a time of transition from one school level to another. Boys, it appears, are in particular need of connectedness to teacher at these times. For both sexes, the key times to target teacher connectedness (e.g., as a way to increase the “Community Values Youth” asset) appear to be during the 7th, 8th, and 9th grades. Such efforts could ward off declines in the assets as well.

Practice

A comprehensive school guidance and counseling program provides an organizational framework with a specific configuration of planned, sequenced, and coordinated guidance and counseling activities and services based on student, school, and community needs and resource (Gysbers & Henderson, 2006). As previously stated, many school counselors are stretched for time and must serve the needs of parents, teachers, administrators, and students. However, through involving teachers, parents, administrators as well as the children in a comprehensive guidance and counseling program, greater clarity about the guidance program goals and of the role of the counselor can be achieved. Our experience suggests that school counselors are less likely to be pulled in 100 different directions when they (a) base goals and related services on assessed needs of students and other stakeholders, (b) make the content

and focus of their guidance program known to teachers, parents, and administration, (c) make clear to students and stakeholders how the four key components of their guidance programs (system support, guidance curriculum, individual student planning, and responsive services) are linked, and (d) demonstrate the effectiveness of these programmatic efforts.

The Developmental Assets framework (presented by the SEARCH Institute) is one approach chosen by many school districts with which to organize their comprehensive guidance model. The Northside Independent School District in San Antonio is an example of a large school district (the sixth largest in Texas) that has oriented its programming around the Developmental Assets framework. This district was the testing ground for Gysbers and Henderson’s (2006) developmental guidance model (which informed and mirrors the ASCA, 2005, model). We also know this district well. It is where two of the authors worked, one as a licensed professional counselor and the other as the director of guidance, and from this district, Karcher received his high school diploma. Northside, already a nationally recognized program, enhanced their model by using the Developmental Assets framework and by developing materials and guidance activities based on this approach. The Developmental Assets framework has been used district-wide to facilitate guidance program staff development efforts with counselors, teachers, administrators, and staff. The model informs such activities as campus mentoring, parent programs, policies, the content of the guidance program curriculum, intervention services, and the district’s federal Safe and Drug Free Schools programming.

The Assets Framework has provided a useful model for many of Northside’s programs but has not provided an effective tool for assessing the needs that individual students bring to the classroom. Formal and informal asset surveys have been used to assess the presence of assets among the student body at Northside at the district level. The results have provided a collective profile of students but no data representing individual student’s assets. This is because the Developmental Assets survey cannot be conducted frequently enough to gauge change resulting from guidance, individual planning, and responsive services for subgroups of students over a short period, and it is not currently used for individuals, only for groups (e.g., districts).

For these reasons, the Hemingway: Measure of Adolescent Connectedness (Karcher, 2001) can be utilized as a complementary tool in order to better assess individual student needs regarding their connectedness to friends, school, and family, and by extension provide proxy measure of Developmental Assets for individual students. This allows counselors and others to better plan and provided needed services for individual students. Combining the specificity of information provided by the connectedness measure with the collaborative and positive effects on school climate that

[AQ7]

a program oriented around the 40 Developmental Assets framework can engender, school counselors can be better poised to enhance student success across the four delivery components of a comprehensive guidance program with this integrated approach. In the sections that follow, we provide examples of how the connectedness measure and its accompanying constructs can be used to facilitate an asset-promoting comprehensive program of school guidance in a school district.

System Support: Teaching Teachers About Connectedness and Developmental Assets

The work that school counselors do with teachers can indirectly help students form connections to the school and foster developmental assets. By providing in-service training to staff, in accordance with the systems support component of the comprehensive guidance program model (ASCA, 2003), counselors can provide leadership and advocacy in promoting systemic change on behalf of students. Providing in-service training using the Developmental Assets framework to teachers and other staff members is a useful way of helping them promote students' healthy development and protect youth from negative and harmful behaviors (Benson et al., 1995). The 40 Assets also reveal types of youth-oriented attitudes and activities that promote or discourage students' conventional connectedness to the school.

As one example of promoting students' connectedness to school, counselors can work with teachers through staff development sessions to teach them how to utilize the connectedness constructs and assessment. Some teachers might want to use the connectedness measure to identify needs among their students. Either in large staff development or with smaller groups of interested teachers, school counselors can illustrate for teachers the uses and interpretation of the measure. These teachers can be taught how to use the data to address promote those assets that are absent in the student's lives. For example, if a student's connectedness profile suggests a marked degree of unconventional connections to peers, teachers and others can collaborate to build more conventional connections to peers through individual peer mentoring or collaborative learning projects. Teachers might also encourage youth who are disconnected from school to participate in school organizations related to the students' expressed interests.

It is critical that teachers understand the work of school counselors. Through such system support activities, school counselors also can indirectly help facilitate experiences of belonging and relatedness in classrooms, hallways, and other areas of the school that may result in increased student connectedness. Through small and large group staff development presentations on the Developmental Assets

and the connectedness research presented previously, school counselors may promote a fuller utilization of comprehensive guidance activities by teachers and students.

School Guidance Curriculum: "The Connections I Make"

Classroom guidance provides counselors an opportunity to become familiar with the student climate as well as to screen students for appropriateness for other services (e.g., individual and group counseling, mentoring, tutoring, or after-school programs). School counselors may find the connectedness scales particularly useful in guidance lessons because they provide a framework for introducing students to the four domains of adolescent connectedness (viz., to friends, school, family, and self).

Cobia and Henderson (2003) advised that all well-designed guidance lessons have a clear purpose, age-appropriate activities, coordinated and sequential lessons, and a summary or evaluative wrap-up. Each guidance lesson is designed to reach all students by delivering concepts that build on those learned in previous guidance lessons. Even though introducing the four domains of adolescent connectedness to students through classroom guidance must be delivered in an age-appropriate manner, it also can be done in ways that are fun, interactive, and memorable.

One example of a guidance lesson that can create an interactive and playful way to introduce the connectedness domains is entitled "The Connections I Make." This lesson asks students to place themselves on one or the other end of connectedness continua depicted in Table 39.2. The goal of this guidance lesson is for students to better understand how much importance they place in different forms of connectedness by weighing the pros and cons of conventional and unconventional connectedness. This is achieved through two different activities. The first activity is interactive and interpersonal, and the second is reflective and more personal. Before beginning the activity, students are asked to complete the connectedness measure. Students should be told their answers will be kept confidential but that the counselor might talk with students afterwards about their responses. To foster buy-in, the students should clearly understand that this measure provides the basis for the content conveyed in that day's and perhaps in subsequent guidance lessons.

After the students complete the connectedness measure, it is set aside, unscored, and students are asked to participate in the first activity. This activity requires them to identify their connectedness statuses by indicating which of two ends of each connectedness continuum shown in Figure 39.2 they more commonly engage in. To indicate their preference, students are asked to move from one side of the room to the other, providing a visual representation of

each end of the continuum. The goal is for each student to identify the types of connections he or she is most inclined toward for each of the dimensions listed in Figure 39.2.

In the second part of the lesson, the school counselor guides the students through a student-centered discussion by encouraging the class to discuss the pros and cons of each type of connectedness. These dimensions should be discussed in an age appropriate manner, such that discussing the terms conventional and unconventional connectedness may be most appropriately used with older youth. Instead, the basic terms—youth versus adult focused—can be defined and written on either an overhead screen or chalkboard. Once defined, the counselor sets the stage for discussion by providing some of the research findings presented in the research section of this chapter. For example, if the youth are familiar with the Developmental Assets framework, this language can be incorporated into the discussion by linking assets to types of connectedness. The pros and cons of high connectedness in each world should be presented by the counselor for middle school students, while for high school students, these can be solicited from the students themselves. During the summary portion of the guidance lesson, the counselor asks students for feedback regarding lessons they learned in order to make sure their understanding is accurate and so that no one feels criticized or labeled. The goals of this activity are to help students identify variations in their connectedness and to more fully understand the benefits and risks posed by each kind of connection as well as to help school counselors identify the needed direction of future guidance lessons or individual planning sessions. Similarly, the counselor's next step toward integrating connectedness-promoting activities into the guidance program can be to take the students' connectedness measures, score them, and use the data to identify individuals who could be appropriate for individual planning meetings or responsive services.

Individual Planning: Assisting Present-Oriented Students

Having completed this guidance activity, the school counselor now has accessed valuable data through the collection and scoring of the completed connectedness measure and through information gathered from the guidance activity discussions. The individual student-planning component of the comprehensive guidance program provides the counselor with a vehicle for assisting all students in developing, monitoring, and assessing educational, occupational, and personal goals (ASCA, 2003). However, the connectedness data gleaned from the classroom guidance activity also can be used to identify students for assistance whose connectedness profile suggests a high degree of unconventional connectedness or a greater orientation to the present than to the

future. Using this information, the school counselor might invite such students to participate in individual planning meetings. In doing so, the school counselor could then work with targeted students individually or in groups in order to establish future-oriented goals related to specific careers. A sample activity may include an individual planning session where the student and counselor investigate the student's areas of interest and strengths with the assistance of a computer-based interest inventory. This can help the student begin to connect present performance in the classroom and potential participation in related clubs and community activities to future interests and aspirations.

Responsive Services: Incorporating Unconventionally Oriented Youth More Fully Into School

Finally, working in the component of responsive services, school counselors can use the measure of adolescent connectedness as a tool for screening students for appropriate counseling groups. Keeping in mind that there are two main types of connectedness—conventional and unconventional—the counselor's goal in group selection should be to identify youth whose interpersonal needs, problems, and skills could compliment those of other students in the group. Doing so can help to avoid the problem described by Dishion et al. (1999), wherein well meaning interventions actually become contexts for deviancy training.

Once the students have been identified for group, connectedness may be used to provide the underlying theme for the group's work or to help link the youths' connectedness to specific developmental assets. For example, the school counselor might encourage discussions centered on the importance of establishing a balance between conventional and unconventional connectedness. The connectedness terms also may provide a shared language for the group, allowing a variety of individual problems (e.g., dealing with divorce, problems with peers, risk-taking behaviors) to be discussed indirectly and more inclusively by referring to the role of connectedness within each of these individual issues.

Another way to introduce the issue of connectedness would be for the school counselor to start the group by asking group members to determine which one of the three shapes in Figure 39.3 they most identify with. The school counselor can then facilitate a discussion regarding the group member's experiences of connection and disconnection and regarding how these experiences have led the students to take on the "shape" they identified. One goal the counselor may pursue is helping the group members encourage one another to seek out connectedness where it may previously have been lacking in the youth's life. The counselor might encourage group members both to create an action-oriented

connectedness plan that facilitates their own connectedness as well as supports fellow group member's development and the achievement of their own plans.

Counselors also should move beyond promoting feelings of belongingness and relatedness in the group and actively help students find ways to establish desired connections. For example, a group member may lack connectedness to school and decide he or she would like to become more involved at school. This group member's action-oriented connectedness plan may include joining a school club, sport, or after-school program. The school counselor could assist this student by helping the student identifying *and achieving* concrete steps toward becoming more connected to school. For example, the counselor may assist the student by setting up the initial appointment for the student to meet with the club sponsor or coach.

Afterword: The Naming of "the Hemingway"

In 1994, Brad Powell and Father Patrick Gahan, at Saint Stephen's Episcopal School in Austin, Texas, asked the measure's creator, Michael Karcher, to develop an instrument that could help them assess student changes resulting from their cross-age peer mentoring program. The main concept of connectedness was derived from a paper by Michael Nakkula and Robert Selman (1991), both of whom were Karcher's academic mentors at Harvard. Nakkula's notion of youth development suggests that programs should serve to promote youth's "interpretation of his or her connectedness to the world over time." This suggestion served as the basis of the Hemingway and guided the development of adolescent connectedness theory (Karcher, 2003a).

The name, Hemingway, also has its origin in the biography of Michael Nakkula. The first son of a blue-collar family in the Upper Peninsula of Michigan, Michael Nakkula was the first individual in his family to attend college. Nakkula's subsequent attainment of a professorship at Harvard led Karcher to ask him how he understood his extraordinary academic achievements. Nakkula explained his connectedness to academe through a story involving one of his high school teachers, who, after reading a paper Nakkula wrote for a class assignment, told Nakkula that he wrote like Hemingway. The interpretation Nakkula made about his connectedness to school and the future helped him achieve his potential in the world of postsecondary education. In honor of that high school teacher's impact, this measure of adolescent connectedness was named *the Hemingway*.

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