



## The role of emotion identification skill in the formation of male and female friendships: A longitudinal study



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### A B S T R A C T

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The present study explored the relationship between emotion identification skill (EIS) and friendships in adolescence. Students from five Australian high schools completed questionnaires annually from Grade 8 to Grade 12 including subjective measures of EIS and a peer-based objective measure of social functioning (e.g., friendship nominations). The total sample of participants was 795 (406 males; 389 females) with 468 (225 males; 243 females) completing questionnaires in Grade 12. EIS in early adolescence was predictive of friendships for females in late adolescence. Specifically, girls starting out with low EIS in Grade 8 tended to have fewer female friendships and more male friendships in Grade 12. There were no effects for males. Lower initial EIS was associated with significant improvements in awareness over time, but these improvements had no effect on friendships in Grade 12. The EIS that girls enter high school with may influence their friendship composition into late adolescence.

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Emotion identification skill (EIS) is the ability to identify and describe one's emotions and plays an important role in well-being (Ciarrochi, Heaven, & Supavadeeprasit, 2008; Ciarrochi, Kashdan, Leeson, Heaven, & Jordan, 2010; Taylor & Bagby, 2004). It has also been studied in conjunction with a variety of mental and physical conditions and low awareness is linked with many clinical disorders (e.g., depression, Bankier, Aigner, & Bach, 2001; eating disorders, Corcos et al., 2000; social phobia, Cox, Swinson, Shulman, & Bourdeau, 1995).

Despite the significance of this construct, there is limited research on the effect it may have on social relationships, which, especially during adolescence, are critical for development and psychological adjustment (Brown, 2004; Collins & Steinberg, 2008). The present study sought to examine the association between EIS and friendships in adolescence.

The ability to establish positive social relationships (e.g., friendships) is essential for health and well-being (Barrera, 1986; Fordham & Stevenson-Hinde, 1999; Hartup, 1992; Parker & Asher, 1993; Uchino, Cacioppo, & Kiecolt-Glaser, 1996). In adolescence, friendships are some of the most important relationships (Hartup, 1992). Social network size (e.g., Hartup, 1996; Nangle, Erdley, Newman, Mason, & Carpenter, 2003) and having at least one friend (e.g., Parker & Asher, 1993) are important for development, adjustment, and buffering against loneliness and social dissatisfaction. Being liked by peers is an antecedent to friendship development (Bukowski, Pizzamiglio, Newcomb, & Hoza, 1996). Those who are popular and accepted by peers are more likely to form friendships and report higher quality friendships (Bukowski et al., 1996; Parker & Asher, 1993).

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There are many benefits of friendships, such as increased self-esteem (Fordham & Stevenson-Hinde, 1999), buffering against the risk of psychopathology (Bukowski, Hoza, & Boivin, 1994), reduced loneliness (Jobe-Shields, Cohen, & Parra, 2011), depression and other forms of maladjustment (Clark & Ayers, 1992; Rubin, Bubowski, & Parker, 2006).

Friendships are fundamental for social maturation during adolescence (Youniss & Haynie, 1992). This is a time when people start spending more time with peers and friendships become more intimate (Caldwell & Peplau, 1982; Clark & Ayers, 1992). Friendships allow adolescents to satisfy their need for intimacy and self-disclosure (Clark & Ayers, 1992) while providing a social context for the development of interpersonal skills, such as collaboration, perspective taking, empathy and altruism (Buhrmester & Furman, 1986; Hartup, 1992).

Social relationships are of heightened importance during adolescence because it is critical for learning how to form and maintain satisfying and long-lasting relationships (Connolly, Furman, & Konarski, 2000; Hays, 1988). Since social relationships at this time may be particularly important in protecting against psychosocial problems (Clark & Ayers, 1992; Fordham & Stevenson-Hinde, 1999; Hartup, 1992; Helsen, Vollebergh, & Meeus, 2000; Parker & Asher, 1993), it is important to understand skills (e.g., emotional awareness) related to friendships during this developmental stage.

### *Emotion identification skill*

EIS is a critical initial component of emotional competence (Buckley & Saarni, 2006; Saarni, 1999), emotional intelligence (EI, Ciarrochi, Forgas, & Mayer, 2006; Mayer, Salovey, & Caruso, 2004; Salovey, Mayer, Goldman, Turvey, & Palfai, 2002) and meta-emotion (Gottman, Katz, & Hooven, 1996, 1997), since it is difficult to act appropriately or control one's behaviour when unclear about what emotions you are experiencing (Dawda & Hart, 2000). Alexithymia is a condition in which there is an inability to recognize and understand one's own emotional state (Kerr, Johnson, Gans, & Krumrine, 2004; Salovey et al., 2002) and is inversely related to EI, particularly, the intrapersonal intelligence component (Dawda & Hart, 2000; Parker, Taylor, & Bagby, 2004).

Not only does awareness play an influential role in well-being (e.g., Cox et al., 1995; Kerr et al., 2004; Taylor, Parker, Bagby, & Bourke, 1996), awareness and sharing of emotions are cornerstones for the development and maintenance of social relationships (e.g., Fitness, 2006; Spitzer, Siebel-Jurges, Barnow, Grabe, & Freyberger, 2005). Understanding, labeling and regulating emotions are associated with positive social relationships (e.g., Eisenberg, Fabes, Guthrie, & Reiser, 2000; Lopes et al., 2004). Low EIS may lead to fewer relationships because having difficulty empathizing and distinguishing others' emotions, which are key aspects of successful social behaviour, are also associated with alexithymia (FeldmanHall, Dalgleish, & Mobbs, 2013). Deficits in the ability to identify and describe emotions have been associated with interpersonal problems in adulthood, but very little research has explored this relationship in adolescence. Adults high in alexithymia engage in less social sharing of emotions, particularly when facing negative events, compared to those who are more aware of their own emotions (Pennebaker, Zech, & Rime, 2001; Taylor, Bagby, & Parker, 1997). Alexithymia is also linked with having difficulty regulating emotions within social interactions (Spitzer et al., 2005), less social contact and fewer acquaintances (Kauhanen, Kaplan, Julkunen, Wilson, & Salonen, 1993), less perceived social support (Posse, Hallstrom, & Backenroth-Ohsako, 2002), smaller social networks and fewer close relationships (Lumley, Ovies, Stettner, Wehmer, & Lakey, 1996).

EIS is correlated with social support network size and quality for adolescents and adults (Ciarrochi et al., 2008; Ciarrochi, Scott, Deane, & Heaven, 2003; Fukunishi & Rahe, 1995; Lumley et al., 1996; Posse et al., 2002). For adults, difficulty describing one's emotions is associated with reduced intimacy, romantic relationship quality (Foran & O'Leary, 2012; Humphrey, Wood, & Parker, 2009), lower peer acceptance (Saarni, 1999), lacking a steady partner or best friend, and having fewer close friends (Lumley et al., 1996). In adolescence, low EIS is associated with fewer and lower quality social support (Heaven, Ciarrochi, & Hurrell, 2010) and predicted decreased perceived quality and quantity of social support over a one-year period from Grade 8 to Grade 9 (Ciarrochi et al., 2008).

EI is correlated with positive social interactions and functioning (e.g., Di Fabio & Kenny, 2012; Mestre, Rocio, Lopes, Salovey, & Gil-Olarte, 2006), such as, quality of social interactions with friends and with members of the opposite sex, perceived self-presentational success in social interaction (Lopes et al., 2004) and reduced loneliness (Zysberg, 2012). Individuals who perceived themselves to be better able to identify their emotions and express these to others reported greater availability of social support (Austin, Saklofske, & Egan, 2005; Di Fabio & Kenny, 2012; Montes-Berges & Augusto, 2007).

Research on meta-emotional theory has found that awareness and openness to emotions and encouragement of emotional expression is beneficial for emotion socialization (Denham, 1997), behavioural adjustment (Gottman et al., 1997), and peer acceptance and social competence (Saarni, 1999). At present, little research has examined focused specifically on emotional self-awareness and friendship.

Given that awareness may be necessary for the development of social support and friendships (Lumley et al., 1996; Spitzer et al., 2005), it is somewhat surprising that there is little research on the effects of awareness on social functioning in adolescence, and especially research that focuses on objective measures of friendship.

### *The present study*

To date, no studies have assessed the relationships between awareness and a peer-based measure of social functioning, in this instance, friendships amongst adolescents. This study examined the link between the way people identify and understand their emotions – EIS – and peer nominated friendship over four years during adolescence.

It was hypothesised that adolescents high in awareness would have more friendship nominations from fellow classmates compared to those with lower scores. Additionally, this study assessed whether initial scores on awareness or change in awareness over adolescence are predictive of the number of friendships in later adolescence.

## Method

### Participants

Participants were students attending five high schools in a Catholic Diocese of New South Wales, Australia, specifically in the Wollongong and South-Western Sydney area. There was a diverse range of key socioeconomic and cultural indicators collected on this sample (see Heaven & Ciarrochi, 2008, for a more detailed account of the sample demographics).

Participants were surveyed in Grade 8 and then every 12 months for four years.

In Grade 8 there were 795 (406 males; 389 females) students that participated. Their mean age being 13.41 years ( $SD = .53$ ). There was loss of participants due to students changing schools or leaving high school throughout the four years of the study. At the fifth wave of data collection, Grade 12, 468 (225 males; 243 females) students participated with a mean age of 17.02 years ( $SD = .38$ ).

Participants' parental occupations and marital status were assessed in Grade 8. Participants' fathers' occupations were distributed as follows: professionals, technicians or managers (40.7%); labourers, transport, or production (23.2%), trades (15.4%); sales/clerical (9.8%); community services (8.9%); and pensioner or homemakers (2.0%). For mothers', 37.3% worked in sales or clerical jobs, 31.8% were professionals, technicians or managers, 20.4% were pensioners or homemakers, 5.9% worked in community services, 4.7% in other work roles (e.g., labourers, trades). The majority of participants' parents were married (87.2%), with the remaining divorced or separated (9.4%), living together (1.9%), or widowed (1.5%).

### Measures

#### Emotion identification skill

The *Toronto Alexithymia Scale* (TAS-20; Bagby, Parker, & Taylor, 1994; Bagby, Taylor, & Parker, 1994) was used to measure self-reported ability to understand one's own emotions. This is a 20-item self-report measure consisting of three subscales: (1) difficulty identifying feelings, (2) difficulty describing feelings, and (3) externally-oriented thinking. The first two factors are self-report measures of one's meta-emotional abilities (one's ability to think about their emotions) whereas the third factor assesses one's thinking style (Lundh, Johnsson, Sundqvist, & Olsson, 2002). For the purposes of the current study, given that we were only interested in identifying and describing emotions and the third subscale has not been found to be reliable in past research on adolescents (Rieffe, Oosterveld, & Terwogt, 2006), only the first two subscales were used making it a 12-item measure. Additionally, difficulty identifying and describing emotions are highly inter-correlated and fall within the same psychometric space; externally oriented thinking is only weakly correlated with the other two factors and does not fall into the same space (Gohm & Clore, 2000). This 12-item version of the TAS has been used in past research, is a reliable and valid measure of EIS in adolescence and has been found to be coherent and internally consistent (e.g., Ciarrochi, Deane, Wilson, & Rickwood, 2002; Ciarrochi et al., 2008; Ciarrochi, Wilson, Deane, & Rickwood, 2003; Heaven et al., 2010). It is also distinguishable from related traits including self-esteem, hope, and positive and negative affect (Heaven et al., 2010). An example item is, "I am often confused about what emotion I am feeling." Items were rated on a 5-point Likert scale (*strongly disagree* (1) to *strongly agree* (5)). Strong internal consistency was demonstrated in the current study (Grade 8  $\alpha = .82$ , Grade 9  $\alpha = .84$ , Grade 10  $\alpha = .84$ , Grade 11  $\alpha = .83$ , Grade 12  $\alpha = .83$ ) in line with previous research on adult samples ( $\alpha = .81$ ;  $r = .77$ ;  $p < .01$ ; Bagby, Parker, et al., 1994; Bagby, Taylor, et al., 1994). Scores were reversed such that higher scores indicate greater awareness. Pearson  $r$  correlations were calculated between the total scores of the TAS-12 for all five waves to assess test-retest reliability of EIS over the years. The intercorrelations between the score over the five waves were all significant, ranging from .51 to .72 ( $p < .001$ ).

#### Friendship nominations

A socio-metric measure was used to assess friendships. Students were given the following instruction, "Consider everybody at your school in Grade 12. Please list up to five of your closest female and male friends". This item is similar to items from Pulkkinen's peer-rating measures (Pulkkinen, Kaprio, & Rose, 1999). Two scores were calculated for each participant based on the number of nominations they received from males and females.

#### Procedure

Consent to administer questionnaires was obtained from schools, parents and students. It was reviewed and approved by the university human research ethics committee and the local Schools Authority. Participation was voluntary and students were informed that the information provided would only be viewed by the researchers. Administration of the questionnaires took place during the normal hours of the school day and was approximately 60 min in duration. In Grades 8 through 12, students completed a questionnaire assessing EIS and in Grade 12, students completed a measure of friendship nomination.

## Statistical methods

### Gender differences

Preliminary statistical analyses using IBM SPSS Statistics 21.0 were conducted to determine means, standard deviations and intercorrelations between study variables. Data was split by gender to assess the association between EIS and friendship nominations by gender. Friendship nominations from female and male peers were also separate to assess differences in how the genders report friendships. *t*-tests were conducted to assess sex differences in EIS and friendship nominations.

### Bivariate associations

Correlations between EIS over the five waves and friendship nominations from males and females (Table 1) were tested for statistical significance.

### Latent growth curve analyses (LGM)

We used LGM to model the inter- and intra-individual change in EIS from Grade 8 to Grade 12. LGM allowed us to model the effect of initial status of EIS and change in awareness over time as a predictor of friendship nominations. LGM also allowed us to explicitly model measurement error and thereby separate the growth analyses from the errors of measurement. Thus, we obtained estimates of true initial status and true rate of change (Bub, McCartney, & Willet, 2007; Duncan, Duncan, Strycker, Li, & Alpert, 1999).

We utilized Amos Version 20 and Full Information Maximum Likelihood to estimate the models (Arbuckle, 2010). In light of clear sex differences (see Table 1) we generated growth curves for males and females separately. Also, since there appeared to be no simple linear trend in the EIS data (Table 1), we estimated both linear and quadratic growth effects. We first fitted unconditional growth models, in order to reveal the inter- and intra-individual differences in EIS changes. We then fitted a model that utilized initial status and linear growth as a predictor of friendship nominations in Grade 12. The LGM intercept was set to values of 1 for each awareness variable. The linear and quadratic slopes were set to weights of 0, .25, .50, .75, and 1, and 0, .0625, .25, .5625, and 1, respectively. These weights made measures “centred” on Grade 8 (initial status).

## Results

The number of friendship nominations from males and females were correlated for both males and females, such that as the number of male friendships increased so did the number of female friendships (for females,  $r = .16, p < .05$ , males,  $r = .23, p < .01$ ). *T* tests revealed no significant sex differences in awareness or friendship nominations from females at any time point. However, differences were found between friendship nominations by males for males ( $M = 2.67, SD = .231$ ) and females ( $M = 2.13, SD = 2.17$ ),  $t(375) = 2.34, p < .05$ , indicating that males gave more friendship nominations to males than females.

A repeat measures analysis was conducted to assess differences in EIS over time. No significant differences were found between EIS over the five waves for either gender.

### Covariates

Analysis of variance (ANOVA) was used to examine comparisons between demographic variables and key study variables. Results indicated that there were no differences in EIS or friendship nominations were dependent on fathers' occupation, mothers' occupation, or parental marital status over the five waves of the study; all  $ps > .05$ . Therefore, these were not confounding variables in the relation between EIS and friendship nominations.

**Table 1**

Means, Standard Deviations, and Correlations between EIS in Grade (G) 8–12 and friendship nominations in Grade 12 for males (above diagonal) females (below diagonal).

Variable	1	2	3	4	5	6	7	M	SD	N
1 EIS G8	–	.53***	.37***	.47***	.42***	.07	.11	3.68	.79	406
2 EIS G9	.59***	–	.54***	.54***	.50***	–.07	.03	3.69	.82	399
3 EIS G10	.48***	.67***	–	.64***	.51***	–.08	.07	3.77	.81	390
4 EIS G11	.48***	.59***	.68***	–	.63***	–.03	.06	3.78	.78	268
5 EIS G12	.50***	.61***	.63***	.65***	–	–.04	–.05	3.64	.81	225
6 Nomination by Males	–.15*	–.19*	–.19*	–.15*	–.08	–	.23**	2.31	2.31	176
7 Nomination by Females	.16*	–.08	.23**	.17*	.23**	.16*	–	3.02	3.02	176
M	3.72	3.63	3.66	3.76	3.70	2.13	2.87	–	–	–
SD	.84	.86	.86	.78	.82	2.17	2.03	–	–	–
N	389	379	387	296	243	201	201	–	–	–

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

EIS = emotion identification skill.

Nominations by Males = friendship nominations by males.

Nominations by Females = friendship nominations by females.

## Correlations

Table 1 presents the correlations between EIS and friendship nominations. For females, EIS was associated with friendship nominations. Specifically, females who reported higher awareness in Grades 8, 10, 11 and 12 received more friendship nominations from other females in Grade 12. In contrast, females who reported high awareness in Grades 8–11 received fewer friendship nominations from males in Grade 12. No relation was found between EIS and friendship nominations for males.

## Latent growth curve analyses

The initial status model provided a good fit to the data for both boys ( $\chi^2 = 18.79$ ,  $DF = 10$ ,  $NFI = .96$ ,  $RMSEA = .042$ ) and girls ( $\chi^2 = 20.6$ ,  $DF = 10$ ,  $NFI = .97$ ,  $RMSEA = .047$ ). There was no significant effect of linear or quadratic slopes for females ( $ps > .05$ ), but significant linear ( $B = -.32$ ,  $SE = .145$ ,  $p = .03$ ) and quadratic ( $B = .31$ ,  $SE = .14$ ,  $p = .03$ ) effects for males. There was a non-significant correlation between intercept and slope amongst boys ( $B = .237$ ,  $SE = .138$ ,  $p = .087$ ). For girls, there was a significant positive correlation between intercept and slope ( $B = .283$ ,  $SE = .139$ ,  $p = .041$ ), indicating that lower initial status in awareness was associated with an increase in EIS for girls. Finally, we found that there was significant variability in initial status (I) and linear (L) and quadratic (Q) growth within both boys ( $\sigma^2_I = .38$ ,  $SE = .045$ ;  $\sigma^2_L = 2.29$ ,  $SE = .71$ ,  $\sigma^2_Q = 1.71$ ,  $SE = .66$ ) and girls ( $\sigma^2_I = .50$ ,  $SE = .052$ ;  $\sigma^2_L = 2.23$ ,  $SE = .64$ ;  $\sigma^2_Q = 1.38$ ,  $SE = .57$ ). Thus, there was considerable variation in initial EIS and change in awareness over time for both boys and girls.

Our final models evaluated the ability of initial status and the slopes (of awareness) to predict Grade 12 friendship nominations. Consistent with our previous correlational analyses, we found no significant effect of EIS on friendship nominations amongst males,  $ps > .05$ . Amongst females, initial status of awareness (Grade 8) significantly predicted fewer male friendship nominations ( $B = -.589$ ,  $SE = .248$ ,  $p = .017$ ) and more female friendship nominations ( $B = .541$ ,  $SE = .23$ ,  $p = .02$ ) in Grade 12. The coefficients indicate that females who scored two units higher in EIS in Grade 8 tended to have one more female and one less male friendship nomination in Grade 12 than those who scored two units lower on EIS. There was no effect of the EIS slope on friendship nominations.

## Discussion

The present study sought to investigate the association between EIS and friendships in adolescence. The study utilized a longitudinal design to examine this relationship over four years using a subjective measure of awareness and a peer-based measure of friendship. The findings indicated that awareness is of particular significance for the friendships of adolescent females – but not males.

EIS was stable over the four years of the study but it is unclear why it remained stable. Possible explanations of this stability may be that the EIS that individuals develop as children may influence the EIS they have in later developmental periods, such as adolescents. Perhaps children with high EIS in childhood continue to maintain high EIS in adolescence; whereas those with poor EIS skills in childhood may have difficulty improving on these poor skills in adolescence. As well, those high in EIS may have had positive role models, support and education about their emotions and thus may continue to seek out ways of understanding their emotions, while those lower in EIS may not have been given these early opportunities and thus, not be interested in their emotions or recognize the benefits of understanding them in later years. The study of the development of EIS skills throughout childhood and the association it has with friendship nominations would improve our understanding of EIS and its implications. However, caution should be taken when interpreting these results since these are preliminary findings. Replication is necessary to determine if these findings are consistent and meaningful.

Emotionally aware females received more friendship nominations from females in Grade 12, relative to their less aware counterparts. However, heightened awareness did not provide universal increase in friendships. That is, females who reported being more emotionally aware received fewer friendship nominations from males. These findings were consistent across the four years of the study. Awareness therefore appears to be correlated with the composition of female friendship, rather than the absolute number of friends. In contrast to females, males showed no link between awareness and friendship nominations. The finding that emotional awareness is associated with friendship nominations for adolescent females, but not males, is somewhat consistent with previous research (Mestre et al., 2006). Mestre et al. (2006) found that understanding and managing emotions was correlated with peer friendship nominations for females but not males. However, they did not find that perceiving or using emotions was correlated for either gender. These findings suggest that emotional skills may be particularly influential for females' social networks. Specifically, initial EIS (Grade 8), rather than change in EIS over four years, was associated with friendship nominations for females in Grade 12.

Being emotionally aware may be beneficial for female-only friendships for a number of reasons. These friendships tend to have higher emotional content, self-disclosure, and intimacy (Bryant, 1994; Caldwell & Peplau, 1982; Clark & Ayers, 1992) and females tend to be more emotionally expressive than males (Kring & Gordon, 1998). Adolescent females also tend to report more social support (Ciarrochi & Heaven, 2008; Furman & Buhrmester, 1992) and higher quality social support when compared to males their age (Ciarrochi & Heaven, 2008). Male and female same-sex friendships differ in the way they spend their time together, with females emphasizing talking and emotional sharing, whereas males emphasize engagement in active and structured activities (e.g., team sports, games, Caldwell & Peplau, 1982; Crick, 1995; Lever, 1978). However, the genders do not typically differ in quantitative aspects of friendship (e.g., number of friends, amount of time spent with friends

and tend to spend most of their time with same-sex friends (Caldwell & Peplau, 1982). Thus, emotions are more central in female-only friendships and those who are more aware of their emotions may be better suited to engage in self-disclosure and emotional sharing.

Less emotionally aware females may have received more friendship nominations from males and fewer from females for a number of reasons. Relationships with males tend to be more superficial and less intimate than relationships with females (Bryant, 1994; Clark & Ayers, 1992; Crockett, Losoff, & Peterson, 1984). Since, people who are less emotionally aware tend to form more superficial relationships (Vanheule, Desmet, Meganck, & Bogaerts, 2007), it may be easier for less aware females to befriend males rather than females.

Boys tend to engage in more structured activities (Caldwell & Peplau, 1982; Lever, 1978), which typically center around games and rules. Thus, less aware girls may find these activities more comfortable and easier to engage in than the more typical unstructured activities of females, such as, talking about emotions and personal issues. Alternatively, less aware girls may merely have a preference for more structured activities. Self-disclosure and emotional sharing are also reported less in friendships among males (Clark & Ayers, 1992; Crockett et al., 1984). Therefore, engaging with males may be easier and less intense for emotionally unaware girls when compared to engaging with more emotionally-focused females. Future research is needed to investigate how more and less aware adolescents spend their free time, engage in social activities, and have emotionally focused interactions.

We found significant variation in the growth of awareness over time. However, Latent Growth Modelling revealed that change in awareness from Grade 8 to 12 was not linked to friendship composition. Instead, the critical factor appeared to be initial awareness in Grade 8. That is, girls starting out low in awareness in Grade 8 tended to have fewer female friendships and more male friendships. Lower initial awareness was associated with significant improvements in awareness over time, but these improvements had no positive influence on friendship nominations (from either males or females) in Grade 12. These results suggest that the emotional awareness females have around the time they enter high school has long-term implications for friendship nominations.

It is interesting to speculate why initial EIS, rather than the development of awareness, was predictive of friendship networks. First, adolescents may maintain the same friendships from the beginning of high school until the end. Change in awareness would not have an impact on quantity of friendships if friendships were stable. However, it looks like instability rather than stability is typical of friendships at this time (Jiang & Cillessen, 2005). In early adolescence, friendship is fairly stable over one school year (50%–70% of friends remain friends throughout the year; Berndt & Hoyle, 1985; Bowker & Bukowski, 1997 as cited in Bowker, 2004). However, even within one year, it is clear that there is considerable change in friendships. In a meta-analysis it was found that stability of socio-metric ratings were moderate (.50), but it goes down about .01–.04 for every 1-month increase in the test-retest period (Jiang & Cillessen, 2005). Since the present study was across four years (48 months), there was likely to be moderate to substantial change in friendship networks.

A second reason that initial awareness may be important is that girls who have more male friends at the beginning of high school may have difficulty making friends with girls. These “male-friendly” girls may be viewed as being odd, different or a threat by other girls. Such perceptions may be difficult to change, despite changes in EIS, making it difficult for these girls to gain female friends.

#### *Limitations and future directions*

We did not assess friendship nominations until Grade 12 and therefore cannot determine the extent that EIS led to changes in friendship networks. It may be that EIS helps people to build friendship networks (Ciarrochi et al., 2008). However, it is also possible that people with fewer friends will develop lower EIS. In childhood, social relationships, particularly those with caregivers, provide opportunity to develop emotional awareness and other emotion regulation skills (Buckley & Saarni, 2006). Thus, it is possible that friendships or other social supports may influence the development of EIS within adolescence.

Future research is needed to assess the link between EIS and friendship nominations where both are assessed at multiple time points. Additionally, peer nominations of friendship were constrained to school peers only –specifically those in the same grade. Therefore, friendships external to school were not accounted for. Quality in addition to quantity of friendships should be assessed in conjunction with EIS to understand the impact it may have within friendships.

A second limitation is the measure used for EIS. Although this measure has been used extensively in past literature (e.g., Ciarrochi et al., 2002, 2003, 2008; Heaven et al., 2010), there may be more suitable instruments for measuring emotional awareness (e.g., *Levels of Emotional Awareness Scale*, Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990). It would be useful to replicate this study using different instruments to assess the reliability of the findings. It would be useful to measure emotional awareness with performance measures (e.g., LEAS) as well as subjective measures since self-reported emotional awareness may have some drawbacks to it. For instance, people truly low in awareness and people who have little belief (i.e., self-efficacy) in their ability to understand their emotions may both score low on emotional awareness for these different reasons.

Since only the first two factors of the TAS-20 were of interest in this study because of the focus specifically on identifying and describing emotions, this makes it somewhat difficult to directly compare the results with previous research. However, previous studies have used these 12-items of the TAS-20 (Ciarrochi et al., 2002, 2003, 2008; Heaven et al., 2010) or only one factor of the TAS-20 (Williams, Ciarrochi, & Deane, 2010). Replication of this study with different measures of emotional awareness would increase understanding on how its association with friendship.

Further study should investigate whether the findings from the present study are consistent across different developmental stages and over different types of social relationships (e.g., romantic relationships, marriage partners, work colleagues) and different aspects of social functioning (e.g., social support, peer-nominated likability, social adjustment).

In summary, EIS levels early in high school appear to have considerable effects on the composition of female social networks. Future research is needed to examine the link between EIS and social behaviour that may facilitate same and opposite-sex friendship formation.

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## References

- Arbuckle, J. L. (2010). *IBM SPSS Amos 19 user's guide*. Chicago, IL: Amos Development Corporation.
- Austin, E. J., Saklofske, D. H., & Egan, V. (2005). Personality, well-being and health correlates of trait emotional intelligence. *Personality and Individual Differences*, 38, 547–558. <http://dx.doi.org/10.1016/j.paid.2004.05.009>.
- Bagby, R. M., Parker, J. D. A., & Taylor, G. J. (1994). The twenty-item Toronto Alexithymia Scale-I. Item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research*, 38, 23–32.
- Bagby, R. M., Taylor, G. J., & Parker, J. D. A. (1994). The twenty-item Toronto Alexithymia Scale-II. Convergent, discriminant, and concurrent validity. *Journal of Psychosomatic Research*, 38, 33–40.
- Bankier, B., Aigner, M., & Bach, M. (2001). Alexithymia in DSM-IV disorder: comparative evaluation of somatoform disorder, panic disorder, obsessive-compulsive disorder, and depression. *Psychosomatics*, 42, 235–240.
- Barrera, M. (1986). Distinctions between social support concepts, measures, and models. *American Journal of Community Psychology*, 14, 413–445.
- Berndt, T. J., & Hoyle, S. G. (1985). Stability and change in childhood and adolescent friendships. *Developmental Psychology*, 21, 1007–1015.
- Bowker, A. (2004). Predicting friendship stability during early adolescence. *The Journal of Early Adolescence*, 24, 85–112. <http://dx.doi.org/10.1177/0272431603262666>.
- Bowker, A., & Bukowski, W. M. (1997). *Making the transition from elementary school to high school: The role of the peer group*. Unpublished manuscript.
- Brown, B. (2004). Adolescents' relationships with peers. In R. Lerner, & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed.) (pp. 363–394). Hoboken, NJ: Wiley.
- Bryant, B. K. (1994). How does social support function in childhood? In F. Nestmann, & K. Hurrelmann (Eds.), *Social networks and social support in childhood and adolescence* (pp. 23–35) Berlin: De Gruyter.
- Bub, K. L., McCartney, K., & Willet, J. (2007). Behaviour problem trajectories and first-grade cognitive ability and achievement skills: a latent growth curve analysis. *Journal of Educational Psychology*, 99, 653–670.
- Buckley, M., & Saarni, C. (2006). Skills of emotional competence: developmental implications. In J. Ciarrochi, J. P. Forgas, & J. D. Mayer (Eds.), *Emotional intelligence in everyday life* (2nd ed.) (pp. 51–76). New York: Psychology Press.
- Buhrmester, D., & Furman, W. (1986). The changing functions of friends in childhood: a neo-Sullivanian perspective. In V. J. Derlega, & B. A. Winstead (Eds.), *Friendship and social interaction* (pp. 41–62). New York: Springer-Verlag.
- Bukowski, W. M., Hoza, B., & Boivin, M. (1994). Measuring friendship quality during pre- and early adolescence: the development and psychometric properties of the friendship qualities scale. *Journal of Social and Personal Relationships*, 11, 471–484.
- Bukowski, W. M., Pizzamiglio, M. T., Newcomb, A. F., & Hoza, B. (1996). Popularity as an affordance for friendship: the link between group and dyadic experience. *Social Development*, 5, 191–204.
- Caldwell, M. A., & Peplau, L. A. (1982). Sex differences in same-sex friendship. *Sex Roles*, 8, 721–732.
- Ciarrochi, J., Deane, F. P., Wilson, C. J., & Rickwood, D. (2002). Adolescents who need help the most are the least likely to seek it: the relationship between low emotional competence and low intention to seek help. *British Journal of Guidance and Counselling*, 30(2), 173–188.
- Ciarrochi, J., Forgas, J. P., & Mayer, J. D. (Eds.). (2006). *Emotional intelligence in everyday life: A scientific inquiry* (2nd ed.). Philadelphia, PA, US: Psychology Press/Taylor & Francis.
- Ciarrochi, J., & Heaven, P. C. L. (2008). Learned social hopelessness: the role of explanatory style in predicting social support during adolescence. *The Journal of Child Psychology and Psychiatry*, 49, 1279–1286.
- Ciarrochi, J., Heaven, P. C. L., & Supavadeeprasit, S. (2008). The link between emotion identification skills and socio-emotional functioning in early adolescence: a 1-year longitudinal study. *Journal of Adolescence*, 31, 565–582.
- Ciarrochi, J., Kashdan, T. B., Leeson, P., Heaven, P., & Jordan, C. (2010). On being aware and accepting: a one-year longitudinal study into adolescent well-being. *Journal of Adolescence*, 34, 1–9. <http://dx.doi.org/10.1016/j.adolescence.2010.09.003>.
- Ciarrochi, J., Scott, G., Deane, F., & Heaven, P. (2003). Relations between social and emotional competence and mental health: a construct validation study. *Personality and Individual Differences*, 35, 1947–1963.
- Ciarrochi, J., Wilson, C. J., Deane, F. P., & Rickwood, D. (2003). Do difficulties with emotions inhibit help-seeking in adolescence? The role of age and emotional competence in predicting help-seeking intentions. *Counselling Psychology Quarterly*, 16(2), 103–120.
- Clark, M. L., & Ayers, M. (1992). Friendship similarity during early adolescence: gender and racial patterns. *The Journal of Psychology*, 126, 393–405.
- Collins, W. A., & Steinberg, L. (2008). Adolescent development in interpersonal context. In W. Damon, & R. M. Lerner (Eds.), *Child and adolescent development* (pp. 551–590). Hoboken, NJ: Wiley.
- Connolly, J., Furman, W., & Konarski, R. (2000). The role of peers in the emergence of heterosexual romantic relationships in adolescence. *Child Development*, 71, 1395–1408.
- Corcos, M., Guilbaud, O., Speranza, M., Paterniti, S., Loas, G., Stephan, P., et al. (2000). Alexithymia and depression in eating disorders. *Psychiatry Research*, 93, 263–266.
- Cox, B. J., Swinson, R. P., Shulman, I. D., & Bourdeau, D. (1995). Alexithymia in panic disorder and social phobia. *Comprehensive Psychiatry*, 36, 195–198.
- Crick, N. R. (1995). Relational aggression: the role of intent attributions, feelings, and provocation type. *Developmental Psychopathology*, 7, 313–322.
- Crockett, L., Losoff, M., & Peterson, A. C. (1984). Perceptions of peer group and friendship in early adolescence. *Journal of Early Adolescence*, 4, 155–181.
- Dawda, D., & Hart, S. D. (2000). Assessing emotional intelligence: reliability and validity of the Bar-On Emotional Quotient Inventory (EQ-i) in university students. *Personality and Individual Differences*, 28(4), 797–812. [http://dx.doi.org/10.1016/S0191-8869\(99\)00139-7](http://dx.doi.org/10.1016/S0191-8869(99)00139-7).
- Denham, S. A. (1997). When I have a bad dream, mommy holds me: preschoolers' conceptions of emotions, parental socialization, and emotional competence. *International Journal of Behavioral Development*, 20, 301–319. <http://dx.doi.org/10.1080/016502597385351>.
- Di Fabio, A., & Kenny, M. E. (2012). Emotional intelligence and perceived social support among Italian high school students. *Journal of Career Development*, 39, 461–475. <http://dx.doi.org/10.1177/0894845311421005>.
- Duncan, T. E., Duncan, S. C., Strycker, L. A., Li, F., & Alpert, A. (1999). *An introduction to latent variable growth curve modeling: Concepts, issues, and applications*. Mahwah, NJ: Erlbaum.

- Eisenberg, N., Fabes, R. A., Guthrie, I. K., & Reiser, M. (2000). Dispositional emotionality and regulation: their role in predicting quality of social functioning. *Journal of Personality and Social Psychology*, 78, 136–157.
- FeldmanHall, O., Dalgleish, T., & Mobbs, D. (2013). Alexithymia decreases altruism in real social decisions. *Cortex*, 49(3), 899–904. <http://dx.doi.org/10.1016/j.cortex.2012.10.015>.
- Fitness, J. (2006). The emotionally intelligent marriage. In J. Ciarrochi, J. Forgas, & J. Mayer (Eds.), *Emotional intelligence in everyday life* (2nd ed.). New York: Psychology Press/Taylor & Francis.
- Foran, H. M., & O'Leary, K. D. (2012). The role of relationships in understanding the alexithymia-depression link. *European Journal of Personality*. <http://dx.doi.org/10.1002/per.1887>.
- Fordham, K., & Stevenson-Hinde, J. (1999). Shyness, friendship quality, and adjustment during middle childhood. *The Journal of Child Psychology and Psychiatry*, 40, 757–768. <http://dx.doi.org/10.1111/1469-7610.00491>.
- Fukunishi, I., & Rahe, R. H. (1995). Alexithymia and coping with stress in healthy persons: alexithymia as a personality trait is associated with low social support and poor responses to stress. *Psychological Reports*, 76, 1299–1304.
- Furman, W., & Buhrmester, D. (1992). Age and sex differences in perceptions of networks of personal relationships. *Child Development*, 63, 103–115.
- Gohm, C. L., & Clore, G. L. (2000). Individual differences in emotional experience: mapping available scales to processes. *Personality and Social Psychology Bulletin*, 26, 679–697.
- Gottman, J. M., Katz, L. F., & Hooven, C. (1996). Parental meta-emotion philosophy and the emotional life of families: theoretical models and preliminary data. *Journal of Family Psychology*, 10, 243–268. <http://dx.doi.org/10.1037/0893-3200.10.3.243>.
- Gottman, J. M., Katz, L. F., & Hooven, C. (1997). *Meta-emotion: How families communicate emotionally*. Mahwah, NJ: Lawrence Erlbaum Associates Inc.
- Hartup, W. W. (1992). Conflict and friendship relations. In C. U. Shantz, & W. W. Hartup (Eds.), *Conflict in child and adolescent development* (pp. 186–215). New York: Cambridge University Press.
- Hartup, W. W. (1996). The company they keep: friendships and their developmental significance. *Child Development*, 67, 1–13.
- Hays, R. B. (1988). *Friendship*. New York: S.W. Duck Edition.
- Heaven, P. C. L., & Ciarrochi, J. (2008). Parental styles, conscientiousness, and academic performance in high school: a three-wave longitudinal study. *Personality and Social Psychology Bulletin*, 34, 451–461. <http://dx.doi.org/10.1177/0146167207311909>.
- Heaven, P. C., Ciarrochi, J., & Hurrell, K. (2010). The distinctiveness and utility of a brief measure of alexithymia for adolescents. *Personality and Individual Differences*, 49, 222–227.
- Helsen, M., Vollebergh, W., & Meeus, W. (2000). Social support from parents and friends and emotional problems in adolescence. *Journal of Youth and Adolescence*, 29, 319–336.
- Humphrey, T. P., Wood, L. M., & Parker, J. D. A. (2009). Alexithymia and satisfaction in intimate relationships. *Personality and Individual Differences*, 46, 43–47. <http://dx.doi.org/10.1016/j.paid.2008.09.002>.
- Jiang, X. L., & Cillessen, A. H. N. (2005). Stability of continuous measure of sociometric status: a meta-analysis. *Developmental Review*, 25, 1–25. <http://dx.doi.org/10.1016/j.dr.2004.08.008>.
- Jobe-Shields, L., Cohen, R., & Parra, G. R. (2011). Patterns of change in children's loneliness. *Merrill-Palmer Quarterly*, 57, 25–47.
- Kauhaneen, J., Kaplan, G. A., Julkunen, J., Wilson, T. W., & Salonen, J. T. (1993). Social factors in alexithymia. *Comprehensive Psychiatry*, 34, 137–142.
- Kerr, S., Johnson, V. K., Gans, S. E., & Krumrine, J. (2004). Predicting adjustment during the transition to college: alexithymia, perceived stress, and psychological symptoms. *Journal of College Student Development*, 45, 593–611.
- Kring, A. M., & Gordon, A. H. (1998). Sex differences in emotion: expression, experience, and physiology. *Journal of Personality and Social Psychology*, 74, 686–703.
- Lane, R. D., Quinlan, D. M., Schwartz, G. E., Walker, P. A., & Zeitlin, S. B. (1990). The Levels of Emotional Awareness Scale: a cognitive-developmental measure of emotion. *Journal of Personality Assessment*, 55(1–2), 124–134.
- Lever, J. (1978). Sex differences in the complexity of children's play and games. *American Sociological Review*, 43, 471–483.
- Lopes, P. N., Brackett, M. A., Nezlek, J. B., Schütz, A., Sellin, I., & Salovey, P. (2004). Emotional intelligence and social interaction. *Personality and Social Psychology Bulletin*, 30, 1018–1034. <http://dx.doi.org/10.1177/0146167204264762>.
- Lumley, M. A., Ovies, T., Stettner, L., Wehmer, F., & Lakey, B. (1996). Alexithymia, social support, and health problems. *Journal of Psychosomatic Research*, 41, 519–530.
- Lundh, L. G., Johnsson, A., Sundqvist, K., & Olsson, H. (2002). Alexithymia, memory of emotion, emotional awareness, and perfectionism. *Emotion*, 2(4), 361–379. <http://dx.doi.org/10.1037/1528-3542.2.4.361>.
- Mayer, J. D., Salovey, P., & Caruso, D. R. (2004). Emotional intelligence: theory, findings, and implications. *Psychological Inquiry*, 15, 197–215.
- Mestre, J. M., Rocio, G., Lopes, P. N., Salovey, P., & Gil-Olarte, P. (2006). Emotional intelligence and social and academic adaptation to school. *Psychothema*, 18, 112–117.
- Montes-Berges, B., & Augusto, J. M. (2007). Exploring the relationship between perceived emotional intelligence, coping, social support and mental health in nursing students. *Journal of Psychiatric and Mental Health Nursing*, 14, 163–171. <http://dx.doi.org/10.1111/j.1365-2850.2007.01059.x>.
- Nangle, D. W., Erdley, C. A., Newman, J. E., Mason, C. A., & Carpenter, E. M. (2003). Popularity, friendship quantity, and friendship quality: Interactive influences on children's loneliness and depression. *Journal of Clinical Child & Adolescent Psychology*, 32(4), 546–555.
- Parker, J. G., & Asher, S. R. (1993). Friendship and friendship quality in middle childhood: links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology*, 29, 611–621.
- Parker, J. D. A., Taylor, G. J., & Bagby, R. M. (2001). The relationship between emotional intelligence and alexithymia. *Personality and Individual Differences*, 30, 107–115.
- Pennebaker, J. W., Zech, E., & Rime, B. (2001). Disclosing and sharing emotion: psychological, social, and health consequences. In M. S. Stroebe, & R. O. Hansson (Eds.), *Handbook of bereavement research: Consequences, coping, and care* (pp. 517–543). Washington, DC, US: American Psychological Association.
- Posse, M., Hallstrom, T., & Backenroth-Ohsako, G. (2002). Alexithymia, social support, psycho-social stress and mental health in a female population. *Nordic Journal of Psychiatry*, 56, 329–334.
- Pulkkinen, L., Kaprio, J., & Rose, J. (1999). Peers, teachers, and parents as assessors of the behavioural and emotional problems of twins and their adjustment: the Multidimensional Peer Nomination Inventory. *Twin Research*, 2, 274–285.
- Rieffe, C., Oosterveld, P., & Terwogt, M. M. (2006). An alexithymia questionnaire for children: factorial and concurrent validation results. *Personality and Individual Differences*, 40, 123–133.
- Rubin, K. H., Bubowski, W., & Parker, J. (2006). Peer interactions, relationships, and groups. In N. Eisenberg (Ed.), *Handbook of child psychology: Social, emotional, and personality development* (pp. 571–645). New York: Wiley.
- Saarni, C. (1999). *The development of emotional competence*. New York: NY, US: The Guilford Press.
- Salovey, P., Mayer, J. D., Goldman, S. L., Turvey, C., & Palfai, T. P. (2002). Emotional attention, clarity, and repair: exploring emotional intelligence using the trait meta-mood scale. In J. W. Pennebaker (Ed.), *Emotion, disclosure, and health* (pp. 125–154). Washington, DC: American Psychological Association.
- Spitzer, C., Siebel-Jurges, U., Barnow, S., Grabe, H. J., & Freyberger, H. J. (2005). Alexithymia and interpersonal problems. *Psychotherapy and Psychosomatics*, 4, 240–246.
- Taylor, G. J., & Bagby, R. M. (2004). New trends in alexithymia research. *Psychotherapy and Psychosomatics*, 73, 68–77. <http://dx.doi.org/10.1159/000075537>.
- Taylor, G. J., Bagby, R. M., & Parker, J. D. A. (1997). *Disorders of affect regulation: Alexithymia in medical and psychiatric illness*. New York: Cambridge University Press.
- Taylor, G. J., Parker, J. D. M., Bagby, R. M., & Bourke, M. P. (1996). Relationships between alexithymia and psychological characteristics associated with eating disorders. *Journal of Psychosomatic Research*, 41, 561–568.



- Uchino, B. N., Cacioppo, J. T., & Kiecolt-Glaser, J. K. (1996). The relationship between social support and physiological processes: a review with emphasis on underlying mechanisms and implications for health. *Psychological Bulletin*, *119*, 488–531.
- Vanheule, S., Desmet, M., Meganck, R., & Bogaerts, S. (2007). Alexithymia and interpersonal problems. *Journal of Clinical Psychology*, *63*, 109–117. <http://dx.doi.org/10.1002/jclp.20324>.
- Williams, V., Ciarrochi, J., & Deane, F. (2010). On being mindful, emotionally aware, and more resilient: a longitudinal pilot study of police recruits. *Australian Psychologist*, *45*, 274–282.
- Youniss, J., & Haynie, D. L. (1992). Friendship in adolescence. *Journal of Developmental and Behavioral Pediatrics*, *13*, 59–66.
- Zysberg, L. (2012). Loneliness and emotional intelligence. *The Journal of Psychology*, *146*(1–2), 37–46.