



The Impact of Ease of Online Self-Expression During Adolescence on Identity in Young Adulthood

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Abstract For many young adults today, omnipresent access to and use of digital technologies has formed a core feature of their identity development. However, little research has examined whether attitudes toward engagement with digital technologies during adolescence impact on identity in young adulthood. Using a longitudinal path modeling approach, the current study sought to examine the impacts of online self-expression during adolescence on identity (confusion and confidence), as mediated by peer connectedness. Furthermore, we investigated whether these effects persisted over time to influence identity

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outcomes in emerging adulthood. Data were drawn from the final two waves of the New Zealand Youth Connectedness Project. Adolescent data was collected from 1,809 youth between the ages of 13 and 18 during 2008, and the emerging adult data were collected five years later during 2013 when participants were aged 18–23 years old. Only those who had regular access to the internet ($N = 1233$) during adolescence were included in the analyses. Key results of the longitudinal serial mediation model include that ease of online self-expression in adolescence was directly associated with higher levels of identity confusion. However, the ease of online self-expression was also cross-sectionally associated with lower levels of identity confusion and higher levels of confidence via a stronger sense of peer connectedness. Further, the ease of online self-expression was indirectly associated with greater confidence and lower identity confusion in emerging adulthood via peer connectedness, confidence, and identity confusion in adolescence. These findings suggest that online self-expression during adolescence may be a double-edged sword in that it increases identity confusion but also provides opportunities for connection in ways that promote identity consolidation (increased confidence and reduced confusion).

Keywords Online self-expression · Adolescence · Identity confusion · Self esteem · Peer relationships

Over twenty years ago it was suggested the omnipresence of digital technologies across all spheres of life would result in distinct forms of socialization that would differentiate the learning styles, attention spans, and even brain structures of a new generation of young people (Prentky, 2001). While subsequent research has found little empirical support for such major divergences in development as a result of technology (Evans & Robertson, 2020), many studies have indicated that youth tend to be more proficient and active users of digital technologies as compared to other age groups (e.g., Helsper & Eynon, 2010). In fact, research has consistently found young people are the largest adopters of new digital technologies, report the greatest frequency of use, and have the highest frequency of technologically mediated interactions (Spies Shapiro & Margolin, 2014). These findings have prompted a move from predominantly focusing on the influence of technology exposure among

young people, to understanding the impacts (both positive and negative) of digital technologies on a range of factors concerning social and psychological development (Shapka, 2019).

One area of increasing attention is the implications of the internet for identity development, as online contexts are found to be particularly conducive for identity work in the form of exploration, self-presentation, and social interaction (Davis, 2013; Wängqvist & Frisé, 2016). However, the long-term implications of engagement with the internet during adolescence on identity has received little attention as the field of research is still relatively young, and many of the existing studies in this area are cross-sectional, or when longitudinal, focus on issues of problematic use (e.g., Anderson et al., 2017). Therefore, there is a notable lack of research investigating the implications of internet use during adolescence on identity both during this formative stage of development as well as on identity later in life. We seek to address this gap in the literature by investigating whether ease of online self-expression is associated with reduced identity integration (lower self-esteem and greater identity confusion) both concurrently during adolescence, as well as five years later in young adulthood. Furthermore, we examine the mediating effects of peer connectedness, suggesting that greater ease of self-expression online may positively influence connections with peers, and through this association, is related to increased identity integration both during adolescence and later in development.

ADOLESCENT IDENTITY IN THE DIGITAL ERA

A critical task during the formative period of adolescence is the development of a stable and authentic sense of self, or an integrated identity (Erikson, 1968). There are two major components of identity that we wish to highlight: holding beliefs and opinions about oneself that are clearly and confidently defined (identity clarity), and having a positive view of oneself, or a feeling of self-worth (self-esteem; Valkenburg & Peter, 2011; Yang & Brown, 2016). Self-expression is a central element to both self-esteem and identity clarity as it is the process through which individuals strategically communicate and control their presentation of self to others (Leary & Kowalski, 1990). With the rise of digital technologies, the internet has become an important place for adolescents to express themselves and is now considered to play a core role in the development of identity (Yang & Brown, 2016). The internet offers distinct

opportunities for the construction of self through the ability to control or curate one's self-image, to safely explore facets of the self, and to encourage deeper connections with others in ways that increase self-expression (Hollenbaugh, 2021). In fact, Valkenburg and Peter (2011) argue that two important predictors of identity integration are the control over one's environment and approval and acceptance from others, both of which may be more accessible for adolescents online.

Much of the available research in this space acknowledges opportunities for easier self-expression and optimized self-presentation online. Of particular importance, the affordances of the internet, such as the ability to remain anonymous and to have greater control over how and when to respond to others (Suler, 2004), are thought to foster contexts in which self-expressions are perceived by adolescents as being easier online than face-to-face. Schouten and colleagues (2007) suggest adolescents who perceive more control over self-presentation online may feel more at ease during online self-disclosure. Additionally, Clark and Green (2018) highlight that technology-mediated interactions offer more opportunities for authentic self-presentation and identity exploration, as self-disclosure is perceived as less intimidating, more controllable, and easier in online settings.

Yet the available research exploring the impacts of online self-expression on identity development is characterized by mixed findings. Some studies have suggested adolescents are able to assert themselves more confidently online (Zhao et al., 2008) and this experience can have a lasting impact on positive perceptions of the self (Yang & Brown, 2016). In contrast, comparatively more evidence suggests engaging in online self-expression is associated with lower self-concept clarity in the form of increased identity confusion (Davis, 2013; Michikyan et al., 2015) and lower self-esteem (Meeus et al., 2019). Michikyan et al. (2015) shed further light on this association in their research finding authenticity of online self-expression was related to a more coherent sense of identity among college students. More specifically, in a recent review of the literature, it was found that inauthentic self-presentations online were consistently associated with lower self-esteem, whereas more authentic and positive self-presentations correlated with increased self-esteem (Twomey & O'Reilly, 2017). Overall, such findings suggest important associations between online self-expression and identity development and indicate the greater ease with which one engages in self-expression online may

be associated with lower levels of identity clarity and self-esteem (or poorer identity integration) during adolescence. Despite the high levels of engagement with technology during adolescence and the potential for easier self-expression online (and the potential negative flow on effects for identity development), limited research has investigated how adolescents' perceptions of ease of online self-expression impact on their identity development both during adolescence and beyond.

CONNECTION WITH PEERS

One of the reasons for inconsistencies in the research concerning digital technology use in adolescence and identity outcomes may be that while online contexts can encourage identity exploration (and in turn, lower self-concept clarity), they also impact identity *consolidation* via increased opportunities for interaction and connection with peers (Davis, 2013). It is widely established that positive peer relationships promote identity development as they enable adolescents to learn about themselves, to explore various identity positions, and to share their sense of self with others (Meeus et al., 2002). Emerging research has found that adolescents who perceive the internet as a positive context feel safer to express themselves, are more easily able to self-disclose online, and perceive higher levels of social support, each of which have positive outcomes for identity integration (Hollenbaugh, 2021; Quinn, 2018; Schouten et al., 2007). Furthermore, a recent research review found evidence that endorsement of the internet as a means to express oneself promoted peer connectedness by increasing the accessibility of friends and enabling opportunities to actively maintain and manage relationships (Wu et al., 2016).

While there may be direct negative associations between ease of online self-expression and identity integration, online contexts also offer youth a space to connect with their peers, and in turn, foster identity clarity and self-esteem. In other words, ease of online self-expression may positively impact identity development in adolescence and into young adulthood through connections with peers. In this study we suggest that ease of online self-expression may act as a double-edged sword, whereby it is likely to be directly associated with poorer identity outcomes (increased identity confusion and decreased self-esteem), but also with increased peer connectedness which, in turn, is associated with better identity outcomes. More specifically, it is suggested that ease of self-expression in online environments may encourage peer connectedness, and in turn, promote increased identity integration.

EFFECTS OVER TIME

The transition into young adulthood is an important time for young people's identity development, with previous research showing that individuals move toward a more integrated identity from adolescence into young adulthood (Kroger et al., 2010). Yet, there is a substantial gap in the research examining self-expression online in adolescence and its impact on the process of acquiring a stronger sense of integrated identity at these later stages of development. There is some short-term longitudinal evidence among young adults, with Yang and Brown (2016) finding that intentionality of expression on Facebook was related to greater reflection on the self, which in turn was associated with higher self-esteem. Furthermore, Metzler and Scheithauer (2017) found selective, positive self-expressions were associated with a higher endorsement of "likes" by peers, and in turn, lower self-esteem over time. While these studies indicate that online self-expression may have lasting effects on identity, there are still major gaps in our understanding of the impacts from adolescence to young adulthood (and beyond). One of the key reasons for the lack of research in this area is that this is a developing field, meaning there are few relevant longitudinal data sets that can shed light on these relationships. Therefore, beyond investigating the concurrent associations between online self-expression, peer connectedness, and identity development among adolescents, the current study investigated whether experiences in adolescence predicted identity integration five years later in young adulthood.

METHOD

Participants

The data utilized in this study form a part of the Youth Connectedness Project (YCP; Jose et al., 2012), a longitudinal study of youth in New Zealand collected annually in schools for three years between 2006 and 2008, with a follow-up online data collection five years later (2013). Adolescents aged between 9 and 16 years old were initially recruited from a wide variety of schools (e.g., mixed sex and single-sex; middle schools and high schools; religious and state schools) using a stratified random cluster sampling approach. Information sheets and consent forms were collected from adolescents and their parents within selected classes in participating schools and adolescents completed surveys via a tablet

during school time. Data were collected in the same manner at time-points 1–3. At time-point 3 (in 2008), students were asked whether they would be willing to be contacted in the future and to provide several methods of contact. The follow-up survey offered five years later was matched with prior responses (Times 1–3).

The current study uses a subset of the full data, particularly focusing on youth who completed the time-point 3 (prior waves were not included due to lack of data collected about internet use). A total of 1809 young people participated in this wave and 1233 adolescents who indicated that they used the internet in their spare time were included in the current analyses (as they were asked subsequent questions about online self-expression). Therefore, the final sample was comprised of 674 females (54.5%) with an average age of 14.31 ($SD = 1.73$) at time-point 3. The majority of respondents (80.8%; $n = 999$) identified as New Zealand European, with smaller numbers identifying as Maori (Indigenous: 301: 24.4%), Pacific Islander (117: 9.3%), or identification with other ethnic groups (181: 14.7%).¹ A third (32.4%) of the sample spent an average of up to 2 hours per week chatting or surfing the internet, with 27.8% spending 3–5 hours online, 15.6% spending 6–10 hours online, and the remainder between 11 and 25 + hours per week online. The main place adolescents spent time online was BEBO (74%), a popular social networking site at the time, with other main places being MSN chat and online games.

Measures

Ease of Online Self-Expression

Perceptions of the internet as a safe and easy place for self-expression was measured with a 9-item scale developed for the purposes of this study. The prompt to the scale asked: “When communicating on the internet, is it easier or harder to do the following (compared to offline):”, with example items including: “stick up for myself”, “show my anger”, and “not feel shy”. Items were rated on a five-point scale, ranging from 1 = *Harder*, 5 = *Easier*. Higher scores on this measure indicate greater ease

¹ Please note that percentages are greater than 100% as adolescents were able to select more than one ethnicity in line with New Zealand standards for collecting information on ethnicity.

of self-expression in the online as compared to offline environment. The measure demonstrated high internal consistency, Cronbach's $\alpha = 0.85$.

Peer Connectedness

Seven items related to peer support developed by Jose and colleagues (2012) (e.g., “*My friends and I help each other out*”), satisfaction with close friends (e.g., “*How happy are you with the amount of close friends outside school*”), and peer relations at school (e.g., “*How well do you get on with your classmates?*”) were used to measure peer connectedness. All items used a five-point scale that varied across questions (Peer Support: 1 = *Strongly disagree* to 5 = *Strongly agree*; Satisfaction: 1 = *Very unhappy* to 5 = *Very happy*; Peers at School: 1 = *Not at all well* to 5 = *Really well*). The measure demonstrated adequate internal consistency, Cronbach's $\alpha = 0.78$.

Identity Confusion

Three items were adapted from the Psychosocial Maturity Index (Greenberger, 1984) to measure the extent to which youth feel confusion or perceive a lack of knowledge about the self; “I don't really know what my interests are”, “I change the way I feel and act so often that I sometimes wonder who the ‘real’ me is”, and “I tend to change a lot what I like and what I don't like”. These items were measured on a 5-point Likert scale ranging from 1 = *Strongly disagree* to 5 = *Strongly agree*. The Cronbach's alpha coefficients in adolescence was 0.65 and in young adulthood 0.72.

Self-Esteem

This measure was comprised of 4 items that were selected from the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Participants were asked to report how much they agreed with statements such as “I feel confident and positive about myself” and “I feel that I have a number of good qualities” on a 5-point Likert scale from 1 = *Strongly disagree* to 5 = *Strongly agree*. The Cronbach's alpha coefficient for the measure in adolescence was 0.86 and in young adulthood 0.89.

Analytical Strategy

Descriptive statistics and bivariate correlations were computed in SPSS. Next, a path model was conducted in Mplus v8.2. The model combined

(1) the cross-sectional associations during adolescence concerning ease of online self-expression on identity confusion and self-esteem as mediated by peer connectedness, and (2) the longitudinal, bidirectional relationships from identity confusion and self-esteem in adolescence to the same indicators in young adulthood. The stabilities in identity outcomes over time were estimated via the inclusion of autoregressive coefficients and the effects of age, gender, and hours spent online per week were treated as covariates in the model. As a final step in the analyses, the indirect effects of adolescent measures of ease of online self-expression and peer connectedness on identity outcomes in young adulthood were examined. The significance of the indirect effects was evaluated using bootstrapped 95% confidence intervals with 5000 bootstrapped samples, with confidence intervals that do not contain zero denoting a significant indirect effect. To assess model fit we use χ^2 , the root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the standardized root mean square residual (SRMR). Good model fit is shown via the combination of these indicators, with smaller χ^2 , RMSEA value of less than or approaching 0.06, CFI value greater than 0.95, and an SRMR value of less than 0.10 indicating good model fit. To account for missing values as a result of attrition in the longitudinal component of the model, full information maximum likelihood (FIML) was utilized.

RESULTS

An examination of the bivariate correlations (Table 1) revealed significant, positive correlations between ease of online self-expression, peer connectedness, and identity confusion during adolescence. While self-esteem also had a positive association with peer connectedness, it was not significantly related to ease of online self-expression. Identity confusion and self-esteem were significantly negatively associated with one another within each time point as well as across time. Furthermore, peer connectedness was positively associated with self-esteem in young adulthood and negatively associated with identity confusion during young adulthood.

In the cross-sectional component of the path model, controlling for covariates, ease of online self-expression was significantly, directly, and positively associated with peer connectedness ($\beta = 0.11$, $p < 0.001$) and identity confusion ($\beta = 0.15$, $p < 0.001$) during adolescence, but it was not associated significantly with self-esteem ($\beta = 0.02$, $p > 0.05$). Additionally, peer connectedness was found to directly predict

Table 1 Descriptive statistics and correlations between indicators at adolescence and young adulthood

	1	2	3	4	5	M	SD	α
Adolescence								
1. Online Self-Expression	–					3.30	0.71	0.85
2. Peer Connectedness	0.11**	–				4.27	0.63	0.78
3. Identity Confusion	0.14**	–0.16**	–			2.27	0.77	0.65
4. Self-esteem	0.04	0.28**	–0.28**	–		4.07	0.68	0.86
Young Adulthood								
5. Identity Confusion	0.05	–0.17**	0.32**	–0.19**	–	2.37	0.87	0.72
6. Self-esteem	0.01	0.17**	–0.18**	0.30**	–0.34**	3.91	0.71	0.89

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

identity outcomes, being significantly positively associated with self-esteem ($\beta = 0.34$, $p < 0.001$), and negatively associated with identity confusion ($\beta = -0.02$, $p < 0.001$) in adolescence. There was also a significant negative indirect effect of online self-expression through peer connectedness to identity confusion during adolescence ($\beta = -0.02$, 95%CI = -0.04 , -0.01), alongside the direct effect ($\beta = 0.14$, $p < 0.001$, 95%CI = 0.08 , 0.20). Furthermore, there was evidence for a weak, significant positive indirect effect of online self-expression through peer connectedness to self-esteem during adolescence ($\beta = 0.04$, 95%CI = 0.02 , 0.05), alongside a non-significant direct effect ($\beta = 0.06$, $p = 0.06$, 95%CI = 0.00 , 0.10).

In the longitudinal component of the model, the autoregressive coefficients were significant for both identity confusion and self-esteem from adolescence to young adulthood, but the stabilities were low. Furthermore, decreases in identity confusion were predicted by greater self-esteem over these five years. In contrast, identity confusion in adolescence did not significantly predict subsequent levels of self-esteem in young adulthood. The indirect effects over time showed that there was a significant positive indirect effect of ease of online self-expression on identity confusion during young adulthood via increased identity confusion in adolescence ($\beta = 0.05$, 95%CI = 0.03 , 0.08). A significant positive indirect effect of peer connectedness during adolescence was also found. Specifically, peer connectedness manifested a significant, positive total indirect effect on self-esteem in young adulthood via increased self-esteem during adolescence ($\beta = 0.10$, 95%CI = 0.07 , 0.14). Additionally, peer connectedness had a significant negative total indirect effect on identity confusion in young adulthood ($\beta = -0.13$, 95%CI = -0.17 , -0.09) that comprised of significant indirect effects via identity confusion ($\beta = -0.095$, 95%CI = -0.12 , -0.06) and self-esteem during adolescence ($\beta = -0.04$, 95%CI = -0.07 , -0.01).

DISCUSSION

Much of the research into associations between online self-expression and identity development has focused on either adolescent or young

adult samples, without considering the direct and indirect longitudinal effects over time. The current study addressed this gap in the literature, finding both positive and negative effects on the development of identity in adolescence, with some evidence for persistence in these effects five years later. As expected, ease of online self-expression was concurrently associated with greater identity confusion, but also with both greater self-esteem and lower identity confusion via increased peer connectedness. Furthermore, online self-expression in adolescence was related to increases in identity confusion into young adulthood, and peer connectedness was longitudinally associated with both increased self-esteem and decreased identity confusion in young adulthood. These findings demonstrate important, long-lasting implications of developmental experiences online for one's sense of self. More specifically, we highlight that perceiving the internet to be a place that is easier to express oneself compared to in-person may have direct and lasting implications on identity confusion, but the positive and negative effects of such self-expressions are likely to be intertwined with whether or not these meet other important needs, such as building connections with peers.

Two hypotheses posed by Valkenburg and Peter (2011), namely the fragmentation and the self-concept unity hypotheses, may be particularly relevant in understanding these findings. The fragmentation hypothesis suggests that developing a coherent and clear identity may be undermined online due to the many opportunities for interactions with both friends and unknown others, and the ease with which different identities can be adopted. In line with this view, research has demonstrated an association between inauthentic self-presentation and lower self-esteem (Twomey & O'Reilly, 2017). In contrast, the self-concept unity hypothesis proposes that online environments provide adolescents with a space where they can experiment with their identity, and alongside this, have opportunities to interact with, and receive feedback from, others (Davis, 2013; Valkenburg & Peter, 2011). Applying these hypotheses more directly to our findings, we begin to better understand the protective mechanism of peer connectedness on identity integration. Specifically, ease of online self-expression was concurrently associated with greater identity confusion in adolescence, however, through peer connectedness, ease of self-expression online was associated with greater self-esteem and lower identity confusion. Furthermore, peer connectedness in adolescence had lasting effects on both increased self-esteem and decreased identity confusion in young

adulthood. Therefore, our findings provide support for both the self-concept fragmentation and unity hypotheses and highlight an important role of peer connectedness in promoting identity integration.

Although our findings must be interpreted in light of the age of our data, recent research has demonstrated that the quality of daily social interactions in face-to-face, text, and social media settings is positively predictive of increased self-esteem (Subrahmanyam et al., 2020). The similar pattern of effects between the current findings and recent research demonstrates persistence of the mechanisms through which self-expressions and interactions influence self-esteem, despite considerable changes in perceptions of, approaches to, and use of the internet and social media in the last decade. The use of historical data in the current study is important and intentional as it allowed a deeper examination of the implications of online self-expression throughout adolescence into young adulthood, for people who are now adults, but were in the process of development when digital technologies started to grow in popularity. This approach is novel in the literature and allowed us to attain a nuanced understanding of how individuals' perceptions of the internet impacted their connectedness and identity development, during both adolescence and young adulthood.

The findings offer insight into the role of the internet in identity integration during adolescence and young adulthood, but there are also notable limitations. Firstly, there was a narrow focus of measures in the study, which were informed by the literature at the time. Recent research suggests that feedback, self-reflection, and authenticity may be underlying mechanisms through which online self-expressions are related to identity integration over time, and as such these should be included in future research (Metzler & Scheithauer, 2017; Yang & Brown, 2016). Further, our study focused on perceptions of ease of online self-expression, rather than examining expressive behaviors online, or even more specifically, self-expression via particular social media platforms. There are likely to be differences in the effects of true behaviors, self-reported behaviors, and attitudinal measures concerning online self-expression of identity as well as other social and psychological outcomes which need to be disentangled. Finally, the data did not allow for comprehensive tests of bidirectional effects between the constructs at regular intervals meaning that even though the results can infer associations across time, more comprehensive studies of longitudinal effects are needed. It is suggested that examining the nuanced ways that the internet is perceived and used as

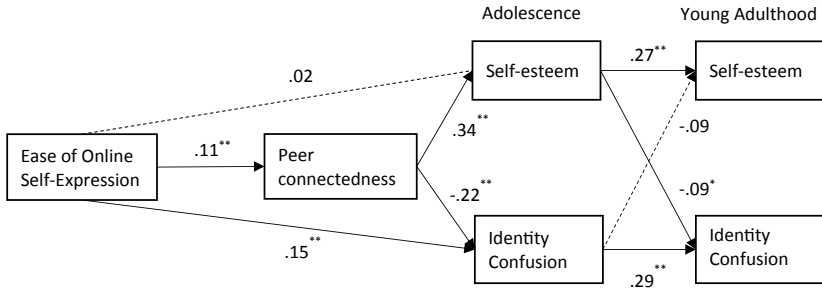


Fig. 1 Path model assessing the associations between ease of online self-expression, peer connectedness, and identity outcomes in adolescence and young adulthood (*Note* * $p < 0.05$; ** $p < 0.001$, solid lines represent significant associations, and dashed lines non-significant associations. Model fit = $\chi^2(10) = 37.80$, $p < 0.001$; CFI = 0.96; SRMR = 0.04; RMSEA = 0.05; 95%CI = 0.03, 0.06)

a tool of self-expression should be a focus of future long-term longitudinal research.

Our experiences, and the contexts in which they occur—particularly during adolescence—shape who we are, how we see ourselves, and where we belong in society. In the current study, we demonstrated that online environments (in a time when they were gaining popularity), helped to shape young people’s identity development. It has recently been suggested that the concept of the “digital native” is losing relevance due to the increasing exposure to technology across the life span (Evans & Robertson, 2020). Yet little research has sought to examine how growing up with the internet in everyday life may have impacted the identity processes of those who were once considered natives of the digital world due to being surrounded by, embedded in, and connected to many forms of internet-connected technologies throughout their formative years. This study has made an important step toward illuminating the lasting implications of online contexts on identity development, and the importance of peer connections to these identity processes. We suggest that for the purposes of growing the field of cyberpsychology, it may be the case that we need to look backwards before we can move forwards in order to truly understand the long-term impacts of the internet on identity (Fig. 1).

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