Personal Homepage Construction as an Expression of Social Development

Kelly L. Schmitt
Insight Research Group

Shoshana Dayanim
Insight Research Group and Fordham University

Stacey Matthias
Insight Research Group

In 2 studies, the authors explored preadolescent and adolescent use of personal homepages in relation to mastery and identity formation. In Study 1, the authors attempted to determine the prevalence of personal homepage and online journal (blog) construction among a random sample (N = 500) of preadolescents and adolescents. Adolescents were more likely to create personal homepages or blogs than preadolescents. Creation was related to feelings of mastery, expressions of identity, and a means to socialize. In Study 2, the authors explored the relationship of homepages to mastery and identity formation by content analysis of a random sample of homepages. Results suggest children use personal homepages to express and explore their forming identities.

Keywords: personal homepages, mastery, identity formation, children and adolescents

Young people spend approximately 50 min per day on the Internet (Roberts, Foehr, & Rideout, 2005). In fact, the Pew Internet and American Life Project survey of 12- to 17-year-olds and their parents found 87% of adolescents used the Internet (an increase from 73% in their 2001 survey), with a significant increase in use between 6th and 7th grades (from 60% to 82%) and a continuous increase throughout high school to 94% in 11th and 12th grades (Lenhart, Madden, & Hitlin, 2005).

Two activities on the Internet that are growing in popularity are the creation of personal homepages and online journals (also known as “blogs”). Everyday practices such as these embody psychological issues at an implicit level. Despite the potential significance, little is known about the prevalence of preadolescents and adolescents who create personal homepages or blogs, and even less is known about the relation of these activities to social development. Survey research investigating personal homepages does exist from private marketing companies, but their data and methodologies are unavailable to the public without substantial fees. One of these surveys led by the private marketing company Grunwald Associates (2003) found that 10% of 8- to 17-year-olds reported having a personal homepage, and an additional 40% said that they planned to create one within the year. A media survey by the Kaiser Family Foundation (Roberts et al., 2005) indicated an increase, with 32% of 8- to 18-year-olds reporting having created a personal homepage. If these numbers are accurate, the role of homepage creation in social development (specifically regarding mastery motivation and explorations of identity) must be explored.

Mastery Motivation

According to Erik Erikson’s (1963, 1968) theory, the key developmental challenge during middle childhood (ages 6 to 12) is mastery motivation. At this time, children strive to gain feelings of accomplishment through the mastery of basic everyday skills. By refining their skills, children develop feelings of self-worth. Creating a homepage and blog in the digital age is fast becoming an everyday skill. Part of this challenge involves developing a sense of mastery in terms of learning to apply oneself and to enjoy one’s own accomplishments. However, experiences of failure and comparisons with others can foster feelings of inadequacy that interfere with the ability to perform.

Evidence of mastery motivation in adolescents’ creation of homepages is seen in their preference for using html script over the point-and-click option preferred by older people (of college age and beyond). Edwards (2004) hypothesized that this is due to the younger generation’s desire to master web page construction skills.

We hypothesized that creating personal homepages (regardless if by the point-and-click method or by html script) may help children to gain a sense of mastery. In this study, mastery is examined in the subjective sense rather than as an objective measurement of the mastery of technical skills. Because mastery is a key developmental challenge during preadolescence as well as something that is developed further in the stage subsequent to preadolescence, we would expect both preadolescents and adolescents to report feelings of mastery. Adolescents have more experience with computers than preadolescents and therefore are ex-
pected to have more complex homepages and as such, to report
greater feelings of mastery.

Identity Formation

As children progress into adolescence, the crucial challenge they
face is one of self-definition and identity formation (Erikson, 1968;
Kroger, 1995). Erikson theorized that, during this time, adoles-
cents develop a sense of who they are and begin to develop goals,
opinions, attitudes, and many new traits. Adolescents proceed
through a period of questioning and exploration (identity morato-
rium) to a phase of making commitments without crisis or explo-
ration (identity achievement). Therefore, they are constantly at-
temting to answer the question of “Who am I?” while using
perceptions from others and from within to help define the self
(Erikson, 1968; Grotevant, 1997).

Turkle (1984) posited that one’s relationship with a computer
influences one’s identity, specifically one’s “humanness” and “ob-
jectness,” and a child’s sense of self may be developed through
interactions with his or her computer. The Internet provides ado-
lescents with a medium through which to explore their identities
(Calvert, 2002) by experimenting with their characters in interac-
tive game playing (McDonald & Kim, 2001; Turkle, 1997), which
is consistent with the need for exploring various presentations of
identities (Harter, 1998), seeking out information, sending and
receiving instant messages (IMs), creating personal homepages
(Wartella, O’Keefe, & Scantlin, 2000) or writing blogs (Huffaker
& Calvert, 2005). Of all the various ways one may explore one’s
identity via the Internet, personal homepages and blogs are the
most public in the sense that both can be viewed and read by
anyone having access to the Internet. The difference between the
two exists in that personal homepages generally provide a clear
representational summary of one’s self, whereas blogs are ongoing
narratives.

As the central function of a personal homepage is one of
self-presentation, it promotes the systematic answering of the
identity-critical “Who am I?” question (Maczewski, 2002). It
offers a semipermanent, controlled means for representing oneself
to others (Rosenstein, 2000). Blogs also provide a space for
ongoing identity exploration in which adolescents can refer back
to previous entries, obtain feedback from readers, and even gain
a sense of comradeship with other bloggers (Huffaker & Calvert,
2005). Huffaker and Calvert also found that similar to homepages,
blogs tended to be consistent in self-representation, with bloggers
exploring one identity rather than trying out multiple identities.

As is typical of blogs but not of other websites, homepages are
a means for public presentation in which one may both experiment
with various self-presentations and gain feedback on their trials,
two valuable experiences in adolescent identity exploration
(Turkle, 1995). There is also a certain anonymity in homepages,
such that the primary intended audience may be the anonymous
Internet public rather than peers and others from the offline world.
Youths have even reported feeling embarrassed when that ano-
nymity is breeched and people they knew from school (students
and teachers) discovered their homepages (Chandler & Roberts-
Young, 1998).

Because the key crisis during adolescence is one of identity
formation and answering the “Who am I?” question, we hypothe-
sized that adolescents would create more personal homepages or
blogs than preadolescents. Furthermore, we hypothesized that ad-
olescents would share more personal information as expressions of
their own identities, as this is a key challenge they are facing.

Social Communities

Childhood is shaped to a great extent by the society in which the
boy or girl lives, such that personality is influenced by culture.
Friends, family, and peers play a critical role in shaping identity
(Erikson, 1968). Through their responses, they serve as powerful
indicators of what children should and should not do. The media is
also a socialization agent which, like peers, is chosen and therefore
functions as a social agent over which youths have more control
than they do over family or school (Arnett, 2004).

The anonymity of the Internet allows for experimentation with
one’s identity in social communities that are isolated from those in
real life (Turkle, 1995). In addition, the absence of physical pre-
sentation may free some individuals from negative stereotypes or
inferior stigmas (Rodino, 1997; Subrahmanyan, Greenfield, &
Tynes, 2004). As found in chat rooms, the Internet offers an
alternate venue for identity exploration equal to that in real-life
interactions (Subrahmanyan et al., 2004). Evidence of online
experimentation comes from two recent studies. When inquiring
whether or not online use included misrepresentation online, Gross
(2004; N = 261) found slightly more than half (51%) of her study
participants agreed they had tried it at least a couple of times. Most
of these (92%) said they pretended to be older than they were.
Although almost half (48%) of those who did misrepresent them-
selves reported they did so as a joke, only 11% reported they did
so to seem more interesting or to explore a different persona. One
can assume that even those who reported misrepresented them-
selves as a joke were in essence exploring their identities in
accordance with Erikson’s identity theory, Valkenburg, Schouten,
and Peter (2005) also found half of preadolescents and adolescents
in their study who used IM or online chat forums (N = 492)
reported using the Internet for identity experimentation purposes,
including to assess relations, to overcome social issues such as
shyness, and to create or strengthen relationships. Preadolescents
between 9 and 12 years of age were found to be significantly more
likely to use the Internet for identity exploration than 13- to
18-year-olds, and they mainly did so by impersonating an older
person, just as Gross found in her study. We hypothesized that
youths who created personal homepages would have more online
friends who were different from their friends in school. In addition,
we hypothesized that youths who created homepages would be
more comfortable sharing information about themselves online
and experimenting with online representations than would youths
who did not create homepages.

Political Development

Like all identity development, political development begins
once children become less impressionable to their parents’ and
parental figures’ attitudes and start to form their own beliefs.
Youths take an interest in political beliefs and their civic duty at
about age 14 and continue this interest throughout adolescence and
young adulthood, when they are particularly receptive and adapt-
able (Flanagan & Sherrod, 1998). This identity exploration is built
from social exploration through activities such as volunteering.
Some see this as part of moral reasoning (Raaijmakers, Verbogt, & Vollebergh 1998) relating to new understanding of the variability among people’s economic situations and/or emerging tolerance for social and cultural diversity. With this in mind, we hypothesized that political references would emerge in early adolescence and would increase with age. These references might take the form of expressions of national or cultural identity (including ethnic and religious identity).

Gender Differences

Although gender differences in Internet usage exist between preadolescent and adolescent boys and girls (Gross, 2004; Subrahmanyan, Greenfield, Kraut, & Gross, 2001), one cannot assume this would hold true for their homepages. Because this topic has seldom been directly studied, it is not clear whether gender differences can be expected in the prevalence of preadolescent and adolescent personal homepage construction. Several studies evaluating college students’ and adults’ homepages found that homepages are generally true representations of their creators (see Buten, 1996; Döring, 2001; Turkle, 1995), and men have significantly more homepages than women (see Buten, 1996; Dominick, 1999; Miller & Mather, 1998). Results with adolescents contradict each other, with one study finding boys more likely than girls to create homepages (Livingstone, Bober, & Helsper, 2005) and another by the Kaiser Family Foundation (Roberts et al., 2005) finding girls more likely than boys to create homepages (39% vs. 26%; D. F. Roberts, personal communication, September 30, 2005).

Gender differences in homepage content have also been found. Men’s sites contain less writing and more technology and stress their status more than women’s sites, whereas women’s sites contain longer narrations, and more time is spent on their pages’ aesthetics (Befring, 1997; Dominick, 1999; Miller & Arnold, 2000; Miller & Mather, 1998). In Stern’s (2004) analysis of adolescent homepages (N = 233), no significant difference was found between boys’ and girls’ inclusion of narrations, but differences in types of narratives were found. Girls were significantly more likely to include their own poetry and descriptions of their appearance.

Gender differences in the type of information provided on homepages are to be expected. During development, girls are more likely to learn about themselves through friendships and relationships, whereas boys forge a sense of identity by being autonomous and independent (Douvan & Adelson, 1966). In terms of their actual technical abilities, boys are more likely to have more complicated technological backgrounds (Girl Scouts of the U.S.A., 2001, as cited in Wartella, Lee, & Caplovitz, 2002) and may be more likely to create personal homepages (Lenhart, Rainie, & Lewis, 2001).

It was not clear whether there would be gender differences in the creation of personal homepages or mastery and identity motivations for use. We did, however, hypothesize differences in the content of homepages such that girls would be more likely than boys to reference friends. In addition, we expected that boys would have more graphics and technical competencies.

Overview

In sum, the existing research suggests that there is a basis for our hypothesis that homepage construction can be linked to preadolescents’ and adolescents’ social construction. In two studies using random samples, we examined personal homepage construction (i.e., online publication) and adolescents’ social construction (i.e., online development). Specifically, Study 1 explored questions of mastery, competence, and accomplishment when building personal homepages via a phone survey with 8- to 17-year-olds. The second study involved a content analysis of 8- to 17-year-olds’ homepages, in which we evaluated the types of content created on these homepages (mastery motivation) and ways that homepage creators presented themselves (expressions of identity). We chose to focus on homepage content, as these are generally completed works serving as a presentation, whereas blogs are ongoing narratives. Thus, a little-known but increasingly growing area, homepage building, and its relationship to social development are characterized here.

Study 1

In the first study, we attempted to determine the prevalence of personal homepage and blog construction among 8- to 17-year-olds. We also examined whether the creation of homepages and blogs was related to a sense of mastery (feelings of competence after making a webpage) and identity formation.

Method

Participants

During the summer of 2003, recruiters randomly contacted households with children between 8 and 17 years of age until 500 survey interviews were completed, 50 for children at each age. The sample was evenly split by gender and evenly distributed between preadolescents (8- to 12-year-olds) and adolescents (13- to 17-year-olds). Parents of these children gave consent and answered several questions about media in the home. When the parent portion of the interview was complete, the interviewer asked to speak with the child. If he or she was not available, the interviewer scheduled another time to speak with the child. The margin of error for this data set is ±4.2%.

Eighty-eight percent of the sample was European American; the remainder was African American, Asian American, Hispanic, and other. It is well established that telephone samples under-represent low-education, low-income, and minority respondents (Green, Holbrook, & Krosnick, 2003). Therefore, this procedure may have resulted in more European American participants than are found in the U.S. population. Most (70%) of the participants’ parents’ education included at least some college. The mean family income was approximately $45,000 yearly.

Materials

A survey questionnaire was administered over the telephone by professional interviewers. There were 20 questions about technology use and access and 9 questions about presentation of self with regard to interacting with others online (average interrater reliability of these items was r = .85). An additional 8 items (r = .87)
concerning having a website and how that relates to mastery and identity formation were asked only of those participants who reported creating websites. These items were rated on a 3-point scale in which 1 = a whole lot, 2 = a little, and 3 = not at all. Mastery items concerned feelings about abilities after creating a homepage or blog. Identity items concerned personalization of the site, the ability to express oneself more freely than in other situations, and interactions with others outside of their social circle that resulted from creating a personal homepage or blog.

Results and Discussion

Age (preadolescent, adolescent) × Sex × Ethnicity (European American, Other) analyses of variance (ANOVA)s were conducted on technology use and ownership. As can be seen in Table 1, no significant ethnicity main effects or interactions of ethnicity with age or sex were found. Therefore, the remainder of the analyses focus on two-way Age × Sex ANOVAs. Eighty-eight percent of the children had a computer at home. Girls (M = 1.09) were more likely than boys (M = 1.16) to have a home computer, F(1, 496) = 6.77, p < .05. Approximately three quarters (76.2%) of 8- to 17-year-olds had a computer with Internet access at home. Not surprisingly, adolescents (M = 1.09) were more likely to have Internet access than preadolescents (M = 1.17), F(1, 434) = 6.81, p < .01. Of those who used the Internet, 13.7% had a personal homepage or blog. All but 5 of the children who created blogs also had created personal homepages. These data confirm prior research indicating that a significant minority of the population of preadolescents and adolescents are creating personal homepages or blogs to share information about themselves with other people.

Almost all of the participants (86%) who created homepages or blogs were adolescents (M = 1.81 vs. 1.94 for adolescents and preadolescents, respectively), F(1, 384) = 14.15, p < .001. That is, adolescents were more likely than preadolescents to have a homepage (M = 1.82 vs. 1.96, respectively), F(1, 384) = 15.45, p < .001, as well as an online journal (M = 1.92 vs. 1.98, respectively), F(1, 384) = 5.48, p < .05. Because personal homepages are expressions of identity, the principal psychological issue of adolescence, it was not surprising to find that adolescents were more likely to have a homepage or blog than preadolescents. As found in previous research (Herring, 2004; Huffaker & Calvert, 2005), boys and girls created homepages and blogs equally as often.

Age (preadolescent, adolescent) × Sex (boy, girl) analyses were conducted on the items concerning reasons for creating personal homepages or blogs. There were no significant sex main effects or Age × Sex interactions. Therefore, only significant age differences will be discussed.

Mastery

Consistent with Erikson’s theory, creating a personal homepage or blog was related to positive feelings about mastery or competence. Most (88%) of the kids who created homepages or online journals said that it made them proud of their abilities. In addition, 82.4% felt that as a result it would be easy to learn how to use new technologies, although this was more true for adolescents (90.7%; M = 1.53) than for preadolescents (37.5%; M = 2.5), F(1, 47) = 10.59, p < .01. Although mastery is the key challenge during preadolescence, these age differences are not surprising. Developing feelings of mastery continues to be important for adolescents, as they are developing a sense of identity (Erikson, 1963). In addition, older children who have more experience in the world (and presumably more experience with computers) feel more confidence and mastery than younger children do.

Identity

Consistent with identity theory, 80% of the youths who created personal websites felt that these pages “help others to understand who [they] are,” and 90% felt that they “can make it [their] own way.” More adolescents (95.3%; M = 1.27) than preadolescents (72.5%; M = 2.0) agreed with the latter statement, F(1, 47) = 7.06, p < .05. Furthermore, more than half (54%) agreed that it is easier to share things about themselves on their personal homepages that they would not feel comfortable telling people face-to-face. It is not clear whether the things that would not be said face-to-face were of a positive or negative nature.

Sixty-nine percent of kids admitted to sharing their URLs with others in chat rooms, at parties, or in school, with adolescents (75.0%; M = 1.99) more likely to do so than preadolescents (37.5%; M = 2.58), F(1, 48) = 3.73, p < .06. Sixty-six percent of

Table 1
Percentage of Participants Who Own or Use Technology

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total sample</th>
<th>Preadolescents</th>
<th>Adolescents</th>
<th>Boys</th>
<th>Girls</th>
<th>European American</th>
<th>Non-White</th>
</tr>
</thead>
<tbody>
<tr>
<td>Own computer</td>
<td>87.6</td>
<td>88.1</td>
<td>87.2</td>
<td>83.8</td>
<td>91.5</td>
<td>89.2</td>
<td>79.4</td>
</tr>
<tr>
<td>Use computer</td>
<td>92.2</td>
<td>88.5**</td>
<td>95.7**</td>
<td>90.5</td>
<td>93.9</td>
<td>91.8</td>
<td>94.1</td>
</tr>
<tr>
<td>Have Internet access at home</td>
<td>76.2</td>
<td>72.8***</td>
<td>79.4***</td>
<td>74.7</td>
<td>77.7</td>
<td>88.9</td>
<td>74.1</td>
</tr>
<tr>
<td>Use Internet</td>
<td>77.6</td>
<td>64.2**</td>
<td>90.3***</td>
<td>77.1</td>
<td>78.1</td>
<td>84.1</td>
<td>84.4</td>
</tr>
<tr>
<td>Created homepage or bloga</td>
<td>13.7</td>
<td>5.8***</td>
<td>19.0***</td>
<td>11.8</td>
<td>15.5</td>
<td>13.8</td>
<td>14.8</td>
</tr>
<tr>
<td>Created homepagea</td>
<td>12.4</td>
<td>4.5***</td>
<td>17.7***</td>
<td>10.8</td>
<td>14.0</td>
<td>12.6</td>
<td>11.1</td>
</tr>
<tr>
<td>Created bloga</td>
<td>5.2</td>
<td>1.9</td>
<td>7.3</td>
<td>3.1</td>
<td>7.3</td>
<td>5.0</td>
<td>7.4</td>
</tr>
</tbody>
</table>

*a Percentage of participants who use the Internet who have created a homepage or blog.

** Main effect, p < .01. *** Main effect, p < .001.
the kids with personal homepages or blogs reported that someone they have never met has contacted them about the site. This was truer of adolescents (71.4%; $M = 1.85$) than preadolescents (37.5%; $M = 2.67$), $F(1, 46) = 4.92, p < .05$.

Overall, these data indicate that youths are using homepages and blogs as a unique form of expression to effectively communicate information about themselves to others. This function falls directly in line with adolescents’ process through identity moratorium and on toward identity achievement. Homepages and blogs begin in preadolescence as ways to personally explore one’s identity and grow to become a way of sharing one’s identity in a manner that provides a level of anonymity, and therefore safety, as well as an opportunity for testing and shaping explored identities. Consistent with the hypothesis, adolescents more freely shared information about themselves than preadolescents because figuring out their identities is of crucial concern to them.

### Social Communities

Website Creation (yes, no) $\times$ Age (preadolescent, adolescent) $\times$ Sex (boy, girl) analyses were conducted on items concerning social communities on the Internet. There were no significant age main effects or interactions with age; therefore, only significant gender differences and differences between those who did and did not create websites will be discussed.

There were significant differences between youths who did and did not create websites on all but one of the social community items. Consistent with the hypothesis, youths who created websites (76.9%; $M = 2.00$) had more online friends than those who did not (54.5%; $M = 2.34$), $F(1, 279) = 5.53, p < .05$. Interestingly, this was more true of boys who had created websites than of girls who had created websites and of boys and girls who had not created websites ($M = 1.72, 2.28, 2.37$, and 2.32, respectively), $F(1, 279) = 4.34, p < .05$.

Consistent with the hypothesis, youths who created websites had a broader online social community that provided them with more opportunities to interact with people who were different from their other friends. That is, youths who created websites were more likely than youths who did not create websites to have online friends who were very different from their other friends (68.6% vs. 38.1% and $M = 2.19$ vs. 2.52 for youths who did and did not create websites, respectively), $F(1, 269) = 5.25, p < .05$, and to have friends who did things they wished they did with school friends (50% vs. 30.4% and $M = 2.39$ vs. 2.64 for youths who did and did not create websites, respectively), $F(1, 268) = 5.19, p < .05$.

There was a trend such that boys who created websites were more likely than girls who created websites and boys and girls who did not create websites to aspire to do things done by their online friends ($M = 2.11, 2.56, 2.66$, and 2.61 respectively), $F(1, 268) = 3.59, p < .06$. Thus, these online communities may be providing important opportunities for identity formation as they give opportunities for youths to interact online with individuals who are different from those in their daily lives.

Youths had a variety of ways of interacting with others online. Interestingly, those who created websites (73.1%; $M = 2.07$) were more likely to “talk to friends online about how to finish our homework” than were those who did not create websites (46.4%; $M = 2.47$), $F(1, 283) = 9.17, p < .01$, possibly serving as an online study group. Youths who created personal web pages were also more likely than those who did not to be “more likely to IM someone than to start up a conversation with someone at school” (48% vs. 26.3% and $M = 2.39$ vs. 2.68, respectively), $F(1, 270) = 5.40, p < .05$, and to feel better about themselves after talking to people online (68.8% vs. 42.9% and $M = 2.29$ vs. 2.53, respectively), $F(1, 264) = 3.76, p < .05$. Those who made web pages were also more likely than those who did not create web pages to have “our own language for chatting online that adults wouldn’t understand” (71.2% vs. 48.7% and $M = 1.88$ vs. 2.36, respectively), $F(1, 276) = 9.27, p < .01$, forming their own community independent from parents and other adults.

Personal homepages also provide opportunity for experimentation. Youths who created homepages were more likely to pretend to be someone different from who they were than were youths who did not create homepages (46.2% vs. 25.8% and $M = 2.39$ vs. 2.70, respectively), $F(1, 273) = 6.37, p < .05$. This is consistent with Lenhart et al.’s (2001) finding that adolescents who IM, chat, or e-mail have pretended to be someone else. Boys also experimented more than girls did with their identities, pretending to be someone different from who they were (37% vs. 21% and $M = 2.39$ vs. 2.70, respectively), $F(1, 273) = 6.84, p < .01$. Given societal pressures placed on boys to be masculine (Pollack, 1998; Way & Chu, 2004), perhaps they find the Internet to be a place where they can behave outside of societal expectations.

### Conclusion

The results of Study 1 indicate that, consistent with previous studies, youths are creating personal homepages and blogs. Further, this study indicates that youths who create personal homepages have feelings of mastery and use personal homepages to express their identities. In addition, such youths may have stronger desires for alternative socialization, as youths with homepages are more likely to have online friends who were different from their school friends and to experiment with their identities online.

### Study 2

In this study, we attempted to further explore the relationship between homepages and mastery and identity formation by examining children’s personal homepages. Examining homepages allowed us to make direct observations (as opposed to relying on self-reports). Further, content analysis is a means of systematically quantifying expressions of mastery, identity, and social communities.

A variety of information is included on homepages. This personal information can be viewed by people around the world. We examined exactly what 8- to 17-year-olds chose to tell others about themselves in order to better understand the function of personal homepage creation.

### Method

A content analysis was conducted on youths’ personal homepages in the winter of 2003. Because the youths were found to create more personal homepages than blogs, and they were quite different in terms of structure, this study focused only on homepages. The homepages that were examined in this study were...
homepages from a paid service identified as being created by an 8-
to 17-year-old. Homepages were selected from the paid service
because there is a filtering system to protect children and to
provide some control for what is available to kids. Also, the chosen
paid service makes designing a homepage simple for beginners
while still allowing others to design more complex pages. Reports
from the paid service indicate that their free web pages are de-
signed for ages 13 and up (even though younger children do create
web pages on their system), and they host over 13 million personal
homepages on their server. It is unknown, however, how many of
these are created by each age group (Edwards, 2004).

Sampling

A random sampling was conducted whereby every third
homepage from the chosen paid service was selected in each age
group (8 through 17 years). The selection procedure was continued
until 12 homepages were assessed within each age and gender
by use of html script.

Coding Procedure

The unit of analysis for the study was the homepage, including
linked pages created by the author. Links to other websites (not
created by the website author) were recorded but not coded for
content. Although the paid service does offer homepage templates,
homepages have no set rules for design or for content. Authors
may choose how to create their pages and what content to include.
Those using templates may choose from over 100, ranging from
“My Web Profile” to pages about hobbies, family, likes, and sports
(among other topics). For beginners, the paid service advertises
easy homepage creation taking as little as 3 min. For the more
advanced designers, the paid service allows them control of their
pages by use of html script.

Each homepage was coded for the following mastery variables:
(a) homepage competency, (b) use of graphics, (c) links on site, (d)
hobbies, and (e) sports involving athletic ability. The homepages
were also coded for the following identity variables: (a) basic
demographics (e.g., gender, first name), (b) interests (e.g., movies,
music), (c) values, and (d) relationships.

Homepage competency. Homepages were coded for the pres-
ence or absence of descriptions of one’s own site. “Positive”
evaluations were classified as those that mentioned winning prizes,
receiving awards, or other positive mentions about their own page.
Comments about their own homepages were codified as “neg-
ative” when they suggested a lack of confidence in abilities or
interest in the homepage (e.g., “I’m not sure what you’d find
interesting about this website” or “I know this isn’t done yet, but
hopefully you’ll want to look at it anyway”).

Graphics. Static images or animation (moving text, objects, or
video) in the homepage were coded under the graphics heading.
Graphics that were part of the template for creating homepages
were not included so that this measure only included personal
homepage graphics that required additional competencies.

Web links. Homepages were coded for the presence or absence
of links to other homepages or websites. This was considered a
type of mastery due to both the effort it takes to place links on the
homepage and the ease with which this may allow the user to
access favorite sites.

Hobbies. Hobbies were classified as “pastime,” “collecting,”
or “practice” (from low to high development of mastery) hobbies.
Pastime hobbies included activities not involving collecting, build-
ing, or practicing (e.g., hanging out with friends, shopping, watch-
ing television, reading, listening to music, e-mailing, surfing the
web, and so on). Collecting and constructing hobbies included
activities that involved collecting objects (e.g., dolls, Yu-Gi-Oh!
cards, or stamps) or building (e.g., kites or models). Practice
hobbies included any activities involving practice in order for the
cild to develop competency (e.g., playing an instrument, making
homepages, writing, drawing, doing math, and so on). Coders also
recorded the presence or absence of reasons for interest in the
aforementioned hobbies.

Sports. Any athletic activity mentioned such as soccer, dance,
gymnastics, or swimming was codified as “sports.” This also
included any photographs of athletic activities.

Basic demographics/personal information. Raters coded
whether personal homepages included information about the
child’s gender, first name, last name, location, height, and weight.
In addition, descriptions about the self were recorded. These were
classified as “positive” when their personality, appearance, abili-
ties, or other personal characteristics were mentioned in a positive
manner (e.g., “I’m fun” or “I’m short, but I like it that way!”). “Negative” descriptions were mentions of personality, appearance,
abilities, or other personal characteristics that suggested dissatis-
faction with oneself or a lack of confidence.

Interests. Homepages were coded for the presence of descrip-
tions of favorite movies, TV shows, characters, celebrities, music,
singers, and foods. Other categories not accounted for in the
aforementioned definition were determined by the rater (e.g., col-
s, TV channels, and movie genre).

Values. The presence or absence of political or social values
was also coded. These included political affiliations, political
activism, religious and ethnic mentions, or other political or social
values (such as the national flag).

Relationships. Children’s desire to be contacted by others as
well as their mentions of other people in their lives were classified.
Desire to be contacted was classified as specific requests for
contact (e.g., “Write to me!”). Coders also recorded whether their
e-mail addresses were included. Information about family members and friends was also re-
corded. Raters counted how many of each type (family and friend)
were mentioned as well as whether descriptions were given.

Reliability

Coders were trained over a 1-month period on homepages
outside of the actual sample until acceptable levels of reliability
were found. Two homepages (one created by a preadolescent girl

...
and one created by an adolescent boy) were coded by all six raters to test for reliability. Only two homepages were coded for reliability because of the complexity of coding and the amount of possible variables on each web page. Total rater agreement was 93% with the interclass correlation coefficient of .74, indicating adequate interrater reliability. Only those variables for which coders achieved a percentage of agreement of 80% or higher were included in the study.

Failure to achieve adequate reliability was found for three variables. Youths’ ethnicities and references to brands were excluded. The number of positive and negative references about friends was condensed into a dichotomous variable (presence, absence), as the exact numbers of descriptors were not consistent among raters.

Results and Discussion

Age (preadolescent, adolescent) × Sex (boy, girl) ANOVAs were conducted on mastery and identity variables. In addition, descriptive information is provided about the type of information found on preadolescents’ and adolescents’ personal homepages.

Mastery

Homepage competencies. Only 12.5% of the youths (all of whom were adolescents, M = .25) made positive statements about their personal homepages, F(1, 44) = 8.61, p < .01. It is not surprising that adolescents made more positive statements about their homepages than younger children, given research indicating that older children are spending more time online (Roberts et al., 2005). Although 55.6% of adolescent girls (M = .42) made such statements, only 12.5% of adolescent boys (M = .08) bragged about their homepages, F(1, 44) = 3.83, p < .06. Examples of such statements included “I’m also a web-design fanatic, and have millions of cute, little homepages just like this one spread around haphazardly around the web” (written by a 17-year-old girl) and “The home of all homepages” (written by a 16-year-old boy).

Graphics. Half (52.1%) of the children included graphics on their homepages. An Age × Sex interaction was found for the inclusion of graphics, such that adolescent girls (M = .83) included more graphics than preadolescent boys (M = .50), adolescent boys (M = .42), and preadolescent girls (M = .33), F(1, 44) = 4.38, p < .05. In addition, girls (M = .29) were found to use animation significantly more often than boys (M = .04), F(1, 44) = 6.00, p < .05.

Web links. Four fifths (81.2%) of the children had web links to other sites. Corresponding with increasing knowledge about the world and experience with computers, only adolescents (M = 3.67) had web links to sites providing information, F(1, 44) = 27.87, p < .01. In fact, 79.2% of adolescents included web links on their homepages.

Hobbies. Four fifths (79.2%) of the children included information about their hobbies on their personal homepages. Hobbies requiring less effort were mentioned more frequently than were hobbies requiring practice: Pastime hobbies were mentioned by 68.7% of children, collecting hobbies were mentioned by 54.2% of children, and practice hobbies were mentioned by 50% of children.

There was a trend such that more girls (83.3%) than boys (75%) reported at least one hobby. In fact, girls (M = .67) were twice as likely as boys (M = .33), F(1, 44) = 5.59, p < .05, to include hobbies that involved practice but not athletic ability (i.e., playing instruments, making web pages, writing, drawing, and so on). Girls were also more likely than boys to include pastime hobbies (M = 2.42 vs. 1.38, respectively), F(1, 44) = 5.17, p < .05, and collecting hobbies (M = 1.5 vs. .54, respectively), F(1, 44) = 5.56, p < .05.

More than one third (36.8%) of the individuals who mentioned a hobby also gave a reason for their interest. Although there was not a statistically significant age difference in the presence of reasons, a qualitative examination suggested that the way hobbies were described changed with age. For example, a 9-year-old girl’s statement about her practice hobby, “I have been working on making homepages, surfing the web for 4 years now,” is factual, whereas a 17-year-old girl’s statement, “When I am sad and lonely I write poetry or short stories,” includes feelings and reasons why she engages in her hobby.

Sports. Two thirds (62.5%) of the children included their favorite sports. There were no age or sex differences. Some sites were dedicated to sports, whereas others only referred to a sport briefly. For example, an 8-year-old boy’s homepage was all about his little league baseball team, and a 15-year-old girl’s homepage was all about her dancing: “As you can see from my site, I absolutely love dance.” Both girls and boys also included brief statements about sports. For example, a 17-year-old girl stated, “I like basketball, baseball, volleyball, biking and swimming,” and a 13-year-old boy simply stated, “My hobbies are baseball and tennis.” The absence of gender differences may speak to the changing world of sports, with the recognition of female athletes and women’s professional teams.

Games. Although most behaviors were engaged in more frequently by adolescents than by preadolescents, this was not the case for links to games. Games were referred to as favorites only by preadolescents (M = .21), F(1, 44) = 6.40, p < .05. This reflects a difference in the amount of time that preadolescents and adolescents tend to spend playing games (Griffiths, Davies, & Chappell, 2004; Wartella et al., 2000).

Youths’ personal homepages clearly contained expressions of mastery, with the most frequently mentioned competencies being hobbies and sports. It appears that girls, especially adolescent girls, are spending more time on their sites and including more positive statements, graphics, and hobbies. In addition, qualitative examination of girls’ homepages suggested that they contain more information, whereas boys’ homepages contained minimal information, seemingly taking less time to create.

Identity

Basic demographic/personal information. All of the homepages included information regarding age and gender. In terms of other identifying information, girls (M = .96) were more likely than boys (M = .75) to include their first names, F(1, 44) = 4.23, p < .05, whereas boys (M = .38) were more likely than girls (M = .13) to include their last names, F(1, 44) = 4.21, p < .05. Twice as many children included information about where they live (54.2%) as included a representation of self (25% included photos or cartoon pictures representing themselves). Girls (M = .46) were more likely to include photo or cartoon representations of themselves than were boys (M = .04), F(1, 44) = 15.71, p <
.01, and adolescents (M = .38) were more likely to do so than were preadolescents (M = .13), F(1, 44) = 5.66, p < .05.

Children included more positive statements about themselves (43.8%) than negative statements (10.4%). Significant differences in gender for positive personal statements were revealed such that girls (M = .63) included more positive statements than boys (M = .25), F(1, 44) = 7.62, p < .01. Consistent with increases in the ability to think abstractly during adolescence (Piaget, 1960), a qualitative examination of personality statements suggested that preadolescents’ comments expressed what they were good at, whereas adolescents provided clearer evidence of identity formation by describing and defending their personalities:

“...I am very good at playing games online and I am also good at typing.” (A 9-year-old girl)

“We are going to be a really good team this year. We might even be in the championship.” (An 8-year-old boy)

“I’m fun and stuff.” (A 14-year-old girl)

“If you don’t like what I look like, keep it to yourself [be]cause I am who I am and I like who I am! That’s what I’m all about...having fun and being myself!!” (A 16-year-old girl)

**Interests.** Only 2 adolescent girls included links to an online journal or blog. Due to small counts in some categories, entertainment mentions were combined (musicians, movies, TV shows, actors, and other celebrities). There was an Age × Gender interaction such that 75% of adolescent girls, 66.7% of preadolescent boys, 41.7% of preadolescent girls, and 33.3% of adolescent boys mentioned entertainment interests, F(1, 44) = 5.56, p < .05. In terms of these interests, musicians were most frequently mentioned (43.8%), followed by movies (22.9%).

In general, it appears that homepages are more frequently used to express interests rather than dislikes. Consistent with using the personal homepage to express who they are or are not, adolescents (M = .17) were the only ones to include dislikes, F(1, 44) = 4.63, p < .05.

**Values.** Political (e.g., animal rights, pro-drug, anti-drug, religious, or political) statements were included only on homepages of adolescents (M = .25), F(1, 44) = 8.61, p < .01. This was largely due to the presence of political statements on the homepages of adolescent girls (M = .42) more so than on the homepages of adolescent boys (M = .08), F(1, 44) = 3.83, p < .06. For example, one 15-year-old girl wrote “Please remember September 11, 2001. All the innocent lives that were taken by the Twin Tower Tragedy. God bless America!” on her homepage.

Religion was mentioned by a minority of individuals (8%). Religion appeared as references to church affiliation and sometimes with biblical references. This may suggest that homepage identity exploration does not include religious identity, perhaps because it is a factor that is outwardly social (i.e., membership and attendance in a religious group).

**Social Communities**

Over half of the children (62.5%) expressed a desire to be contacted, and almost all (93.8%) included their e-mail addresses. This data is consistent with the findings in Study 1 that children who create personal homepages desire online social interactions. Research with 8- to 13-year-olds who did not have personal homepages suggested little interest in online social interactions (Valkenburg & Soeters, 2001).

More than one third (39.6%) of the children included friends on their personal homepages. Listing friends and providing information about them varied by the age and sex of the child, F(1, 44) = 4.92, p < .05, such that adolescent girls (M = 6.75) listed significantly more friends on their homepages than did adolescent boys (M = 1.67), preadolescent girls (M = 1.58), and preadolescent boys (M = .83). Half of those mentioned by girls (M = .96) included the friends’ last names, in comparison with only 20% of those mentioned by boys (M = .04), F(1, 44) = 4.19, p < .05. Girls’ greater inclusion of friends is consistent with girls’ learning about themselves through relationships (Rubenstein & Zager, 2002).

Among those who listed friends on their homepages, adolescent girls (M = .67) provided the most information about their friends, F(1, 44) = 9.78, p < .01, followed by preadolescent boys (M = .17) and preadolescent girls (M = .17). Descriptions included personal comments directed toward the friend about why they like them (for example, “You always make me laugh,” written by a 17-year-old girl) and descriptions geared toward readers to share things about the friend: “He is a great person to talk to as well. He is a great person to go to for advice” (written by a 16-year-old girl). When preadolescent boys included descriptions of their friends (no adolescent boys did this), their descriptions were short and factual: “We’ve been best friends since [first] grade” (written by a 10-year-old boy).

Approximately one third of the children (31.2%) mentioned family members on their personal homepages. Girls (M = 1.54) mentioned more family members than did boys (M = .21), F(1, 44) = 4.95, p < .05. In particular, siblings were more likely to be mentioned by girls (M = .63) than by boys (M = .08), F(1, 44) = 7.35, p < .05. Of the 25% of children who referenced a sibling, many (77.8%) included a description. Of the children who mentioned their siblings, 44.4% mentioned feelings. Regardless of age or sex, most references made regarding siblings included negative feelings: An 8-year-old girl included that her sister is “a pain sometimes”; an 11-year-old girl included, “I have an annoying 8-year-old sister”; and a 16-year-old boy referred to his “annoying sister.”

It is not surprising that youths would frequently mention siblings, as they often share many attributes, and individuation also occurs among them (Brody, Moore, & Glei, 1994; Lempers & Clark-Lempers, 1992). Negative references toward siblings are consistent with prior research finding that there is often a negative dynamic between siblings, more so than between peers (Buhrmester & Furman, 1990).

Study 2 confirms the hypothesis that children’s personal homepages reveal expressions of their identities and mastery motivation. In terms of identity formation, children varied in the type of information provided (interests, relationships, and values). Preadolescents frequently mentioned what they are good at, whereas adolescents expressed more about their personalities, values, friends, and families.

**General Discussion**

This research indicates that preadolescents and adolescents, for the first time in human history, are able to publish at will (expressing themselves publicly to a mass, but anonymous, audience). This new form of expression is private, occurring in children’s own time and space, and not only allows for mastery of technological and social skills, but also contributes to youths’
identity development in a unique fashion. This kind of online publication could have a tremendous impact on development. When this study was fielded in 2003, 14% of the participants reported having created a homepage. Since then, the Kaiser report (Roberts et al., 2005) has found the frequency to have more than doubled, to 32%. This increasing number of homepages created by youths only further stresses the importance of understanding the role of homepages in development. Personal homepages, as well as blogs and social networking sites, also allow for a unique opportunity: access to a vast amount of youths’ personal self-expressions, something we may otherwise not have access to. In Study 1, we explored questions of mastery and competence via a phone survey with 8- to 17-year-olds. Study 2 helped us to understand how and why youths express feelings of mastery about and identity formation through their homepages by exploring the types of content on these pages.

The present findings support our hypothesis that homepage construction can be linked to preadolescents’ and adolescents’ social trajectories. Erikson posited that youths need to feel they have successfully accomplished, or mastered, various skills in order to move on to finding out what they are about (i.e., identity formation). After considering both the survey and the content analysis of homepages, we can conclude that mastery is experienced through personal homepage creation and content. Youths admitted to feelings of success, and pride is obvious on most sites. Adolescents appeared to express greater feelings of mastery than preadolescents regarding their homepages. Although mastery is a key challenge during preadolescence, the finding that adolescents experienced greater feelings of mastery is consistent with Erikson’s theory that key developmental challenges continue in the next stage, further developing during subsequent stages.

Further, these studies confirmed that personal homepage creation has a place in the identity formation of youths. Preadolescent and adolescent homepage authors used their pages as a forum for expression, socialization, and in some instances intimacy (in sharing personal information and feelings they may otherwise not have had a forum in which to share). The research indicates that youths use these sites as a place for underlying identity expression and not external identity exploration as seen by the brevity and lack of reference to external identity such as ethnicity, wealth, appearance, and so on. This is perhaps a reflection of their acknowledgement that a filter is needed to maintain their anonymity (Lenhart & Madden, 2007). As children age, their homepage content increases in complexity (e.g., web links) and expression (i.e., longer text). This may be due to underlying cognitive changes in the ability to think more abstractly.

Through this research, we have learned that youths who create personal homepages do so for various reasons. Some use this as a forum for expanding their social world or for gaining a richer relationship with peers they socialize with in school. Others use homepages as places for exploring their emergent identities, by presenting something resembling a yearbook biography or personal essay. Things that prior to the arrival of the Internet and its anonymity may have never been expressed in a public domain for fear of embarrassment may be presented in this forum. Regardless of the reason, youths appear to benefit from the process of creating personal homepages. They feel they have accomplished something and have something to show for it: a personal tribute, a mark on the World Wide Web. This research also suggests some gender differences in the function of personal homepages. Girls appear to use personal homepages to express information about the self and feelings toward others, whereas boys who create personal homepages are more likely to make online friends and to experiment with their identities online. It is not clear whether boys’ distant social relationships are indicative of a gap in daily interactions. This should be explored in future research.

The growing popularity of blogs and social networking sites, such as Facebook and MySpace, also provides an impetus to continue this research. Blogs are similar to paper-and-pencil diaries in that they both contain the diarist’s experiences and interests (McNeill, 2003), but they are distinct in the invitation to be publicly read and to generate commentary (Fothergill, 1974). Social networking sites combine information found on personal homepages and blogs. They offer users a way to present personal information, much like personal homepages, while constantly updating and even chatting with friends in a public forum. Users invite friends they have personal relationships with or other users they find through browsing to be a part of their social network, thus having access to ongoing personal updates. Although research has begun to be published on social networks (see Ellison, Steinfield, & Lampe, 2007; Valkenburg, Peter, & Schouten, 2006), this area is still largely unexplored. Given the similarities between personal homepages and social networking sites, one may assume these findings may generalize to social networking sites. Further, research on social networks is a logical next step as the sites are inclusive of, or replacements for, personal homepages.

First, ethnic differences in personal homepages or social networking sites could be examined with a larger sample of non-European Americans. Although no ethnic differences appeared in our study, we cannot assume this would hold true with a larger non-European American sample. Second, longitudinal research following preadolescents through adolescence and monitoring their participation on social networking sites would provide much additional insight into the role of such sites in social development. It would also serve as a means for parents and educators to gain invaluable insight into these and other youths’ lives.

In sum, although there is both hope and fear with respect to the Internet—some hope that it will educate our children and make them better equipped for jobs, whereas others fear that it will lead to social isolation, depression, and loneliness (McKenna & Bargh, 2000)—the creation of personal homepages appears to be positively related to identity formation. Children who create personal homepages have strong feelings of mastery and use personal homepages to express to others who they are. The nature of the medium provides them with an outlet for expressing who they are in a way that may be more comfortable than telling people face-to-face. Although further research is needed to determine how expressing one’s self on personal homepages differs from other ways of expressing mastery and identity, it is clear that children are now able to experiment with different facets of themselves through this new technology.

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