



Web-based tracking methods in longitudinal studies



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ARTICLE INFO

Article history:

Received 24 November 2013

Received in revised form 28 February 2014

Accepted 1 April 2014

Available online 13 April 2014

Keywords:

Longitudinal

Follow-up

Online resources

Tracking

Program planning

ABSTRACT

The use of online resources to reduce the attrition of program participants in longitudinal studies is examined. Higher-risk individuals, those involved in illegal activities, and females with last name changes are typically more difficult to locate. The effectiveness of using online resources for these participants is addressed. These resources include social networking sites, people-finder search engines, telephone and address directories, judicial records, and death records. The strengths and limitations of these resources are presented and discussed. Longitudinal studies using these resources are examined to evaluate their successful follow-up rates. The results of these studies indicate that participant characteristics are more important to successful follow-up than the length of time since participation or sample size. The use of multiple online sites increased follow-up rates, especially for those who are typically difficult to locate. The variables and websites to consider are discussed, and six lessons learned are offered. The prospective use of online participant involvement is especially important for successful longitudinal evaluation and program planning.

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The purpose of this article is to examine the use of online resources in longitudinal studies of program participants. Longitudinal studies provide data for the evaluation of programs and ideas for program planning. Web-based resources are widely used, but their effectiveness in longitudinal studies has received scant attention. Only a few studies have provided useful information on the resources used, such as the name of tracking sites and search strategies, details on their advantages and disadvantages, and their success in finding information on participants (Barakat-Haddad, Elliott, Eyles, & Pengelly, 2009; Haggerty et al., 2008; Kleschinsky, Bosworth, Nelson, Walsh, & Shaffer, 2009).

An important issue is the effect of attrition in longitudinal studies. Follow-up studies after 20 years without participant contact have shown that some participant groups are more difficult to contact than others (Barakat-Haddad et al., 2009; Hampson et al., 2001; Hser, Hoffman, Grella, & Anglin, 2001; Rodger, Lanigan, Hocking, & Crofts, 2001; Tehranifar, Terry, & Susser, 2002). Participants who are involved in illegal activities and women are among the most difficult groups to contact in follow-up research (Masson, Balfe, Hackett, & Phillips, 2011). Family name changes among women after marriage increase the difficulty of tracking them. Individuals who are engaged

in criminal behavior may conceal their identity online, assume false identities, and hide their location to evade arrest (Haggerty et al., 2008). Additional challenges presented by criminal populations are higher incidences of residential mobility, family estrangement, spontaneous relocations, lack of reliable contact information, phone disconnections, limited education, and substance abuse (Cotter, Burke, Stouthamer-Loeber, & Loeber, 2005; Haggerty et al., 2008; Kleschinsky et al., 2009; Masson et al., 2011; Wutzke, Conigrave, Kogler, Saunders, & Hall, 2000).

Although attrition is always an issue in follow-up studies, the question is which online resources have empirical support and the utility to reduce attrition, especially for participants who are typically difficult to locate. Improving successful follow-up rates could provide a basis for evaluation guidelines and contribute to the credibility, validity, and generalizability of evaluation conclusions (Corsi, Hunnik, Kwiatkowski, & Booth, 2006).

Several types of online resources have been used in longitudinal research, including social networking sites, people-finder search engines, telephone and address directories, judicial records, and death records. Each type is presented, and their purpose, cost, information required, and the types of information that can be obtained are discussed. The utility of each online resource is then described along with important considerations. Next, the follow-up success of longitudinal studies that used these methods to reduce attrition is assessed. Finally, lessons learned are offered and a conclusion reached.

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1. Online resources

1.1. Social networking sites

Social networking sites provide profile pages that contain information such as personal biographies, relationship statuses, networks, friends, “likes,” and “favorites.” All social networking sites include only people who sign up. Four sites used in longitudinal research are Classmates (classmates.com), Reunion (reunion.com), Facebook (facebook.com), and the New MySpace (myspace.com). All memberships are free, but Classmates and Reunion also have fees for higher-level memberships.

Classmates and Reunion memberships are based on school alumni and class directories. Matches of maiden and married names are particularly useful for longitudinal research with female participants. Facebook is a networking site with a large membership representing a cross-section of the United States, while New MySpace is a networking site designed for entertainers interested in promoting their music and networking with other entertainers. The information needed to join, the information obtained, and the strengths and limitations of each are presented in Table 1.

For all of these sites, an important consideration is that the use of the Internet differs among participant groups by age, gender, income level, race/ethnicity, education, and geographical location. Obviously, contacting groups with lower rates of Internet use may require greater effort and may still result in lower follow-up rates. Internet use is higher among younger adults; white and Asian Americans; and those with higher incomes, with higher levels of education, with school-age children, and who live in urban areas (National Telecommunications and Information Administration (NTIA) and Economics, Statistics Administration (ESA), 2013; Zickuhr & Smith, 2012). About 80% of households in the United States use the Internet at home. The 20% who do not cite lack of interest, expense, or not having a computer (NTIA & ESA, 2013).

Not surprisingly, these differences among demographic groups are reflected in the use of social networking sites (Bolanos et al., 2012; Duggan & Brenner, 2013; Rhodes & Marks, 2011). Facebook boasts over 150,000,000 users in the United States alone (Burbary, 2012). Alumni social networking sites, such as Reunion and Classmates, are popular among people over 45 (Ellison, Steinfield, & Lampe, 2007). Overall, social networking sites are increasing proportionally among people between the ages of 35 and 50 years of age, who now represent a demographic group of active users (Royal Pingdom, 2012).

One related issue is privacy. Access to profile information is determined by the privacy settings of individual members and their membership levels. Social networking site users have grown alarmed about privacy breaches and have significantly increased their privacy settings (Boyd & Ellison, 2007; Joinson, 2008). These users hide identifying information from “non-friends” and make their friends lists private so they are accessible only within their social networks (Masson et al., 2011). Users are increasingly wary about the type of personal information they reveal in order to safeguard their identities and protect against victimization or unwanted intrusions. They are concerned that personal profile information could be used for employment termination, screening job applicants, self-incrimination, corroborating evidence in criminal/civil trial proceedings, cyber-bullying, etc.

In a study that began following participants using Facebook in 2010, around 83% of profiles openly revealed their friend list. Nearly one and half years later, 52.6% hid their friend list. In addition, relationship statuses, high school names, genders, graduation years, and hometowns were more likely to be excluded from profiles. Age may also make a difference. Participants over 55 were less likely to exclude information than those in their 20s (Dey, Jelveh, & Ross, 2012).

When social networking sites produce many matches cross-checking names can be useful in correctly identifying participants, schools attended, and locations (Masson et al., 2011). Using multiple sites, name variations, and command search functions to sort through long lists of names are likely to increase the accuracy and effectiveness of a search.

1.2. People-finder search engines

Unlike social networking sites, people-finder search engines lack self-selection bias; users do not need to sign up to be included in a database. Instead, people-finders provide information on virtually all groups across demographic dimensions. Therefore, people-finders are theoretically inclusive of anyone whether they use the Internet or not.

The World Wide Web (WWW) is an expansive information grid with information divided into two layers: surface web and deep web. The surface web has information indexed by popular web search engines such as Google (google.com), Yahoo! People Search (people.yahoo.com), and Bing (bing.com). The vast amount of information is difficult to access and is inaccessible to web search engines that are traditionally used in follow-up work. The deep

Table 1
Social networking sites.

Information needed	Information obtained	Strengths	Limitations
Classmates: Name, city/state of high school, year(s) attended	Maiden name, age, places lived, send messages, view profile biosketch; read and reply to messages; see if located out-of-state or in-state	Wide collection of high school yearbooks back to 1900; preview digitized yearbooks; dynamic search filter; user-friendly; popular	Restrictive search results without paid account; statewide name search not possible
Reunion: Name, city/state of high school, year(s) attended	Age, middle name/initial, city/state locations lived in (with basic access); paid membership includes phone number, relatives/associates, education, work history, send messages	Includes schools in U.S. Territories, Canada, Armed Forces; nation/state-wide search by name, location, job title, company, email, school	Disorganized presentation of search results with basic access; limited capability of search filter
Facebook: Email, name, location, school, group/membership affiliation	Employer, job history, age, family members; biographies, comments, religious and political affiliation, status updates, hometown, personal activities, birthdate, relationships, friends list, friends in other networks, “likes” and “favorites”	“Surf” user’s ‘friend list;’ search browser facilitates finding user’s friends via multiple platforms; direct messaging; additional filters to search results; users represent a broad cross-section of the U.S. population	Common name matches produce many with similar names, some false; search filters limited to employment, location, school
New MySpace: Name, city/zip code, gender, age/age range, profile type	Short biographies, entertainment and music networks and ‘connections’, location, website address, full name	Largest digital music library; can refine searches to a specific social group; links to Twitter, Pinterest, Tumblr Instagram	Emphasis on music; difficult to search; multiple similar names, some false; younger users

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