A Life-Design-Based Online Career Intervention for Early Adolescents: Description and Initial Analysis

Laura Nota, Sara Santilli, and Salvatore Soresi

Using contemporary digital technology offers possibilities for better engaging youth in constructing their future careers. This study describes and initially tests the effectiveness of an online career intervention based on life-design principles. Middle school students were assigned to either a traditional test interpretation-based intervention group or an online intervention group. Analysis conducted to evaluate pre- and posttest differences between the 2 groups indicated that students in the online intervention group showed higher levels of career adaptability and life satisfaction than did students in the traditional intervention group. Results also suggested that intervention increased students’ narratives future aspirations.

Keywords: career counseling, Internet, computer-based career intervention, career adaptability, life design, middle school students

Today’s career problems require supports and services different from those traditionally used, such as matching people to jobs (Savickas, 2008). Using technology in career intervention offers one such novel approach. Technology and the Internet could support career counselors in providing high-quality services at reasonable prices through the use of computerized tests, materials, evidence-based protocols, and other information that can be quickly accessible to clients (Sampson & Osborn, 2015). Technology could also enable career counselors to assist clients with life planning by providing person–environment matching activities and disseminating information about training opportunities and educational plans. Career intervention activities that help contain costs and reach a large number of people are becoming increasingly important (Soresi et al., 2014), and using technological innovations could promote real progress toward reaching this goal (Richards & Viganó, 2013).

The Pew Internet & American Life Project (Rainie, 2010) suggested that technological innovations offer the possibility of involving younger generations in important activities in an interactive way. Likewise, Gati and Asulin-Peretz (2011) pointed out that a major challenge career counselors will face in the 21st century concerns the use of new technologies. They asserted that it is necessary to invest in online career self-assessments and self-help interventions and investigate how these...
can be included within the career counseling process. Therefore, we developed and conducted an initial test of an online career intervention program derived from principles of life design. Life design is a new career paradigm advanced by an international group of scholars to support people to become experts in constructing their life-careers, to anticipate and deal with transitions, and to create hope for a meaningful future in spite of the complexities of work and careers brought about by today’s economic conditions, globalization, and the digital revolution (Savickas et al., 2009). The online program was designed to encourage early adolescents to invest in their future and its design, increase their career curiosity and life satisfaction, and formulate career aspirations by considering issues such as the importance of education, self-determination, and the role of relationships in career planning and decision making.

**Career Adaptability in Middle School**

During preadolescence, children initially engage with the world of work and develop foundations of career adaptability (Hartung, Porfeli, & Vondracek, 2008). Career adaptability involves having initial concerns about the future and control over one’s own life, curiosity about how to make career decisions, and confidence to make and implement such decisions (Savickas, 2013). Children begin to think about their vocational interests, work values, and career aspirations and expectations that will eventually become important for making successful career transitions, such as from school to work (Hartung et al., 2008).

In Italy, it is in middle school that students face their first critical career transition and decision as they must choose a type of high school that matches their first professional plan. During this transition period, many students experience much distress as they struggle with indecision and uncertainty about their futures (Howard, Ferrari, Nota, Solberg, & Soresi, 2009).

Students need to use current strategies to cope with this transition period, so that it can be an opportunity for growth and a source of satisfaction for them. Hartung (2013) maintained that, in this connection, supporting the development of career adaptability could be important. Such thinking is in line with studies indicating that adolescents with higher levels of career adaptability feel more career decided, more oriented toward the future, and more competent with regard to constructing their future career intentions and transforming their intentions into goal-oriented behaviors (Wilkins et al., 2014).

At the same time, investments in the future, in education, and in career construction are pressing national issues in Italy because of the increased high school dropout rate registered in the first years of high school, especially among boys (MIUR, 2014). Online programs offer a way to better engage adolescents in career planning and decision making and could especially help boys, who may benefit more than girls from online learning activities (Miller, Schweingruber, & Brandenburg, 2001).

**Online Career Programs for Middle School Students**

Most computer-assisted career guidance systems (CACGS) developed in the second half of the 20th century aimed to provide information
about different occupations and educational alternatives. These guidance systems are characterized as interactive because an individual can operate independently to retrieve information that is useful for self-assessment (e.g., interests and skills) and career exploration (D. Brown, 2003). CACGS have been created for and tested mainly with high school and university students, although a few such systems exist for middle-school-age youth (Hughes & Karp, 2004).

One CACGS for youth is DISCOVER (American College Testing Program, 1991), which provides self-assessments of interests, values, and abilities, along with information about hundreds of occupations so that users can generate lists of occupations that match their self-assessment information. A second online program, Believe It: A Career Development Intervention for Young Women (Kovalski & Horan, 1999), comprises two 50-minute meetings developed to change four irrational career beliefs: (a) Children should be dependent on adults for their career choices; (b) for every person, there is only one job in the world that will lead to happiness; (c) choosing a career involves making final decisions at specific points in time; and (d) certain jobs are more appropriate for men, whereas other jobs are better suited to women. A third program, Mapping Vocational Challenges (Turner & Lapan, 2005), contains three modules. In the first, Career Exploration, career information is presented through job cards displayed on the computer screen, with information about educational requirements, working conditions, and so on; in the second, Career Mapping, students are invited to complete the occupational map of their interests; in the third, Interpretation Module, a report is issued that summarizes adolescents’ responses and presents recommendations for further career exploration, education, and training. Finally, a fourth program, Computer-Assisted Career Group Guidance (Bozgeyikli & Dogan, 2010), comprises three steps. In the first step, slides present the meaning of interests, skills, and personality traits; the occupational development process; higher education options; and occupational fields. In the second step, students focus on the skills and interests associated with educational options. In the third step, in relation to their career and educational preferences, participants are provided with information that is useful for their decisions.

One strength of these programs is the use of audiovisual materials, such as slides, videos, and cartoons, which focus attention on some important variables of career decision making such as interests, values, irrational ideas, and skills. Yet, in general, almost all of these programs have their basis in traditional person–environment fit models. Thus, they support middle school students’ career decision making through gathering information about personal characteristics, educational programs, and occupations, and therefore encouraging self-assessment and interest–occupation match (Bozgeyikli & Dogan, 2010). Alternatively, we wanted to develop a computer-based program, divided into three parts, called “1, 2, 3 . . . Future!” to incorporate the principles of life design with its focus on intentionality, adaptability, and narratability.

A Life-Design-Based Online Career Program

Rather than promoting person–occupation matching, the 1, 2, 3 . . . Future! program aims to advance the goals of life design. Specifically, it
Aims to help students begin a process of career construction by prompting “meaningful activities that further self-making, identity shaping, and career constructing” (Savickas, 2012, p. 15). The program also aims to foster career goal setting and planning that consider educational pathways and occupational possibilities, as well as other spheres of life, such as leisure and social relationships. Considering past studies that highlighted the importance of planning training to improve self-efficacy in young adolescents in not less than 10 hours, we decided to focus only on concern, control, and curiosity (Nota, Soresi, Solberg, & Ferrari, 2005).

Following S. D. Brown and Krane’s (2000) recommendation, the 1, 2, 3 . . . Future program includes written exercises designed to help youth focus on strengths and goals, individualized interpretation of assessment results, and the presence of supportive and caring adults who offer encouragement. To design the program, we also followed guidelines for effective online career interventions (Proudfoot et al., 2011). These guidelines included (a) referring to validated theoretical models; (b) producing high-quality websites; (c) including authorship information, such as the identity of program developers; (d) considering ethical issues, such as confidentiality and security of the site; (e) ensuring professional support of previously trained teachers and career counselors; and (f) creating interactive programs (feedback and exercises) and multimedia channels (text, graphics, images, and videos).

**Life Design and Early Adolescence**

Recent reflections in the career counseling field emphasize that we can no longer think that the future is predictable and full of possibilities as we have believed in the past. The management of changes and transitions with adaptability, narratability, and intentionality is becoming increasingly important (Savickas et al., 2009). The life-design approach argues that people should build career trajectories that take into consideration investment in education, interaction between work and other life roles, self-determination and life satisfaction, and attention to what is personally meaningful (Nota, Ginevra, Santilli, & Soresi, 2014). Vocational self-concept should be the result of a series of reflections that begin at an early age, in relation to questions such as “Who am I?” and “What are my strengths?” and with regard to opportunities and experiences at home, at school, and in other life contexts (Hartung et al., 2008; Savickas, 2013).

Career adaptability—and its four dimensions of concern, control, curiosity, and confidence—plays a significant role in this process. For early adolescents, concern means looking ahead, focusing on educational and professional paths to be undertaken, and keeping a positive attitude toward the future. Control means being responsible for the construction of one’s career, investing effort, and committing to it. Curiosity means looking around, exploring, seeking information, and examining alternatives to make career choices more realistic and in line with important personal future goals. Confidence relates to problem solving, willingness to overcome challenges and obstacles, and working hard to successfully carry out the necessary actions to fulfill and implement suitable educational and professional choices (Hartung, 2013).
From life-design theory, we hypothesized that adolescents who engage in the 1, 2, 3 . . . Future! online program would evidence higher levels of career adaptability (i.e., concern, control, and curiosity) and a greater sense of life satisfaction than would adolescents who engage in a more traditional, test-interpretation-based intervention. According to McAdams (2011), young people who are able to integrate aspects of self-representations in a narrative process that includes past, present, and future are also those who are more likely to imagine future life trajectories and experience higher levels of life satisfaction. We also hypothesized that adolescents who engage in the 1, 2, 3 . . . Future! program would report in a future aspirations narrative more aspects considered important in the life-design approach, such as investment in education and description of work activities rather than a specific occupation, than would a traditional-based career intervention group. In summary, the 1, 2, 3 . . . Future! program is expected to increase adaptability and life satisfaction and stimulate future aspirations that are more in tune with the life-design approach (Savickas et al., 2009). In line with Miller et al. (2001), we hypothesized that boys in the online intervention group would show higher levels of career adaptability and life satisfaction and more life-design-based future aspirations than would girls.

**Method**

**Participants**

In this quasi-experimental, pretest–posttest design study, participants included were 87 boys (43.5%) and 113 girls (56.5%) with a mean age of 13 years and attending 16 different classes of 10 public northeast Italian middle schools. Eight classes of five public schools agreed to carry out the 1, 2, 3 . . . Future! program, and 100 students of these classes (98%) participated (online intervention group). Eight classes of five other public schools accepted the proposal to conduct a traditional vocational guidance program, and 102 students (97%) participated (traditional intervention group). From this group, we selected 100 students to compare with the online intervention group. The online intervention group was comprised of 100 students (39 boys and 61 girls; \( M_{\text{age}} = 13.24 \) years; \( SD = 1.60 \)), and the traditional intervention group was comprised of 100 students (48 boys and 52 girls; \( M_{\text{age}} = 13.12 \) years; \( SD = 1.51 \)). No significant gender differences were identified between the online intervention group and the traditional group, \( \chi^2(1) = 1.721, p = .190 \), and age, \( t(161) = 1.627, p = .105 \).

**Measures**

*Future aspirations.* In a biographical data form, participants were asked once at the beginning and once at the end of the intervention to complete the following statement: “About my future, what I desire most is . . .” Responses were content analyzed by considering the following categories derived from the life-design approach (Nota et al., 2014; Savickas et al., 2009): self-determination and attention to choice processes; description of work activities rather than a specific job; future dreams, expectations, and goals; strengths; focus on life satisfaction; attention to relationships; and investment in training.
Career adaptability. We measured at pre- and postintervention the career adaptability dimensions of concern, control, and curiosity. Absent a single instrument able to measure these dimensions among middle school students, we used three indicators. To measure concern, the propensity to focus pathways to pursue, we used Gati et al.’s (2011) Career and Education Decision Status Scale. Participants were asked to respond to two questions on a 6-point Likert-type scale (1 = not at all decided, 6 = very decided): “How decided are you about your future school?” and “How decided are you about your future job?” In the present study, Cronbach’s alpha was .65 for the online intervention group and .66 for the traditional intervention group. In a pilot study, Cronbach’s alpha of these two items was .66, and positive correlations existed regarding the level of hope students had about their future (Santilli & Soresi, 2013).

To measure control, the propensity to feel responsible for the construction of one’s own professional life, we used the five-item Locus of Control subscale of the Ideas and Attitudes on School-Career Future–Middle School Version (Soresi & Nota, 2001). Participants reported on a 5-point scale how much each statement described their typical way of thinking and behaving (1 = does not describe me at all, 5 = describes me very well). Sample items include “I don’t know what to think when I have to decide which is the best school for me” and “I can’t imagine what I will do when I grow up.” In the present study, Cronbach’s alpha was .78 for the online intervention group and .75 for the traditional intervention group.

To measure curiosity, the propensity to explore career options and search for information, we used nine items of the Career Adapt-Abilities Scale–Italian Form (Soresi, Nota, & Ferrari, 2012). Participants responded to each item on a 5-point Likert-type scale, indicating how strongly they developed the proposed abilities (1 = not strong, 5 = strongest). Sample items include “imagine how my future will be” and “consider different ways of doing things.” Cronbach’s alpha was .82 for the online intervention and .80 for the traditional intervention group. We used these nine items in a pilot study focusing on middle school students’ curiosity; the alpha was .79, and they correlated positively with students’ life satisfaction (Santilli & Soresi, 2013).

Satisfaction with life. We used the five-item Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) to assess global life satisfaction. Participants responded to each item on a 5-point Likert-type scale indicating their level of agreement with the statement (1 = strongly disagree, 5 = strongly agree). Sample items include “I am satisfied with my life” and “The conditions of my life are excellent.” In the present study, Cronbach’s alpha was .86 for the online intervention group and .85 for the traditional intervention group. In a pilot study, Cronbach’s alpha was .85, and life satisfaction correlated positively with optimism about the future (Santilli & Soresi, 2013).

Procedure
All participants were involved in vocational guidance activities at their school. We asked them if they wished to participate, and we obtained their own and their parents’ consent. Both the online intervention...
group and the traditional intervention group responded to the future aspirations question and all measures before and after the intervention. A quasi-experimental, pretest–posttest design was used to assess the effectiveness of the online career program. Pre- and posttest data from the two equivalent groups were compared following the interventions (Clarke, 1995).

**Online intervention group.** The 1, 2, 3 . . . Future! program (for more information, see http://larios.psy.unipd.it) comprised three 2-hour sessions (6 hours in total), each with a video and specific activity for students held in the computer room of the participants’ schools. The project was implemented by operators (teachers and career counselors with a specific postgraduate training in vocational guidance and career counseling) who had been specifically trained by us over five 3-hour meetings focused on the basic ideas of the life-design approach, the variables under observation in the program, and ways to involve the students and run the activities (e.g., how to present the activities to the students, how to welcome the students, how to run and supervise each activity).

Each meeting began with a 15-minute video in which the first two authors proposed specific variables on which the students would later be asked to reflect, such as interests, values, and future projects. The aim was to focus their attention on the importance of these variables. We then administered online questionnaires to the participants and invited them to rate themselves on those same variables and identify their strengths. Students, to identify professional goal setting and to find pathways to achieve one’s goals, then used these strengths in the third meeting.

In the first session, as suggested by Savickas et al. (2009) and Savickas (2013), with the first 15-minute video, we invited the students to reflect on the importance of looking toward the future, to take responsibility for their future, and to devote time to plan their future. We encouraged students to think that having more interests and values could help their career construction and their future life, in which they would likely have to work more than one job at a time, or change jobs frequently, and we examined the importance of having more than one source of satisfaction (Savickas et al., 2009). Lastly, we introduced the concept of prestige—in particular, the idea that the quality of the work carried out can increase self-esteem and a positive self-view in the life context. After the video, we proposed measures that present adequate psychometric properties for the Italian context (Santilli & Soresi, 2013) to the students, to help them broaden their range of interests, values, and prestigious activities to consider in their projects (for Holland’s [1959] six categories, $\alpha$ values for the My Interests scale ranged between .60 and .80; $\alpha$ values for the My Work and Values scale [for career values such as altruism, work in group, and economic security] ranged between .70 and .88; and $\alpha$ values for the My Career Prestige scale ranged between .60 and .82).

In the second session, a video highlighted the importance of investing in education and training, considering that we live in the “knowledge society” and explaining some features of it (e.g., the importance of studying different disciplines to enrich professional lives, create dynamics, and evolve trajectories; Savickas et al., 2009). After the video,
the students were invited to answer three questionnaires, validated in the Italian context (Nota, Ferrari, & Santilli, 2012), to help them to identify their strengths associated with the investment in education, the tendency to think about different future projects, and the presence of a positive attitude (α values ranged between .77 and .83 for the I, School and Studying scale [for investment in education, such as time planning, self-control, and concentration]; α values ranged between .71 and .81 for the Future Projects scale [for propensity to think about different future projects, such as make plans, take responsibility for own choices, and explore new opportunities]; and α values ranged between .70 and .90 for the Positive Attitude scale [for positive attitudes, hope, optimism, resilience, and future perspective]). At the end of the second session, each student obtained a personalized report, which described the variables measured, with bar graphs representing the strengths of the students addressed in the first and second meeting. To favor careful analysis and reelaborations, the students were asked to read the report, draft a written synthesis of the strengths that emerged for each variable, and write a brief description of themselves in the light of all of the information, in an interactive way using the computer. They were also invited to write down different education and career activities they may consider in their career plans. The students could print or save their personalized reports and their work.

In the third session, a video provided the definition of goal, examples of goals, and the advantages associated with having multiple goals and multiple ways to focus on personal goals (Savickas et al., 2009; Soresi et al., 2014; Vondracek, Ford, & Porfeli, 2014) After the video, students were encouraged to write down two goals in line with their strengths and their future aspirations, and also in other areas of their life (e.g., love relationships, leisure activities, contribution to society), where they could make the most of their strengths. The students were invited to “aim high” (e.g., “If I studied more . . .”). Lastly, they were asked to write down other professional activities that could help them achieve their goals and compare them in light of their strengths (which were shown in their personalized report).

*Traditional intervention group.* During the same period in which the online group completed the 1, 2, 3 . . . Future! intervention, a second group engaged in activities traditionally carried out in Italian middle schools and required by the Italian school programs (MIUR, 2014; Soresi, 2000). Students in the traditional intervention group responded to the same measures of interests, values, and study motivation used in the online intervention group (My Interests [Santilli & Soresi, 2013]; My Work and Values scale [Nota et al., 2012]; I, School and Studying scale [Nota et al., 2012]). On the basis of their responses, the students received personalized reports with suggestions about future school programs and job activities associated with their interests, values, and study motivation. These reports were discussed with students in groups and individually upon the student’s request. In the group activities, we discussed the importance of considering personal characteristics and context possibilities for career choice. We also provided a range of information about local schools and job opportunities. Such activities required approximately 5 to 6 hours.
Data Analysis
To evaluate the effectiveness of the online intervention, we carried out repeated-measures analyses of variance over time as a function of treatment condition and gender. The independent variables were treatment condition (online vs. traditional intervention) and gender (boys and girls). Pre–post measurement was the repeated measurement factor (time; O’Brien & Kaiser, 1985). The effect size was assessed using the partial eta-squared ($\eta^2_p$), which evaluates the percentage of variance explained by each variable. Conventionally, the threshold values for the index $\eta^2_p$ are .01, .06, and .14, which indicate a small, moderate, and large effect size, respectively (Greene & Salkind, 2003).

Results
The first and second author independently examined all answers to the question, “About my future, what I most desire is . . . ” (i.e., future aspirations). The percentage of agreement between the two coders was over 95% for all categories. Table 1 shows the categories and examples for each.

Table 2 presents the means, standard deviations, and intercorrelations among the variables for the total sample at pretest and posttest and the means and standard deviations for participants in the traditional intervention and online intervention groups at pretest and at posttest. A multivariate analysis of variance (MANOVA) was conducted to determine if there were significant differences between treatment group conditions before the

<table>
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<tr>
<th>TABLE 1</th>
<th>Sample Participant Future Aspirations by Life-Design Variable Category</th>
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<tbody>
<tr>
<td>Life-Design Category</td>
<td>Sample Future Aspiration</td>
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<tr>
<td>Self-determination and attention to choice processes</td>
<td>“Choosing the right school that I want to attend”</td>
</tr>
<tr>
<td></td>
<td>“Choose the good work that I will do”</td>
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<tr>
<td></td>
<td>“Being able to do the job that I want and that I have chosen”</td>
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<tr>
<td>Description of work activities rather than a specific job</td>
<td>“Keeping up with the kids. Helping people in difficulty”</td>
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<td></td>
<td>“Knowing many languages, travel, use languages to help others”</td>
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<td></td>
<td>“Working with animals”</td>
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<tr>
<td>Indication of future dreams, expectations, and goals</td>
<td>“Realizing my dreams and those of my parents”</td>
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<tr>
<td></td>
<td>“Realizing what I desire more”</td>
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<td></td>
<td>“Achieving my goals and do what I desire”</td>
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<td></td>
<td>“Doing a job where I can use my skills”</td>
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<td></td>
<td>“Improve my strength”</td>
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<td></td>
<td>“A job that reflects my interests and my values”</td>
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<td></td>
<td>“To live a happy life”</td>
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<td></td>
<td>“Be happy despite difficulties”</td>
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<td></td>
<td>“Live happily in a green house. Continuing to pursue my music interest”</td>
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<tr>
<td>Focus on life satisfaction</td>
<td>“Helping other people”</td>
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<td></td>
<td>“Build a lovely family”</td>
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<td></td>
<td>“A job that allows me to be comfortable with my family”</td>
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<tr>
<td>Attention to relationships</td>
<td>“Engage in study”</td>
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<tr>
<td></td>
<td>“Attend college and a master specialization”</td>
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<tr>
<td></td>
<td>“Achieving good work and study results”</td>
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</tbody>
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Note. Pretest $n = 100$. Posttest $n = 100$. Intercorrelations for pretest are presented below the diagonal, and intercorrelations for posttest are presented above the diagonal.

* $p < .05$. ** $p < .001$. 

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Pretest</th>
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<th>Pretest</th>
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<th>Pretest</th>
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<td>$M$</td>
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</tr>
<tr>
<td>1. Concern</td>
<td>—</td>
<td>.17*</td>
<td>.32**</td>
<td>.57**</td>
<td>6.73</td>
<td>2.60</td>
<td>7.52</td>
<td>2.67</td>
<td>6.92</td>
<td>1.92</td>
<td>9.13</td>
<td>2.28</td>
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<tr>
<td>2. Control</td>
<td>.10</td>
<td>—</td>
<td>.16*</td>
<td>.15*</td>
<td>21.26</td>
<td>2.64</td>
<td>20.65</td>
<td>2.89</td>
<td>20.26</td>
<td>3.27</td>
<td>22.16</td>
<td>2.56</td>
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<tr>
<td>3. Curiosity</td>
<td>.14*</td>
<td>.26**</td>
<td>—</td>
<td>.27**</td>
<td>31.36</td>
<td>4.81</td>
<td>31.55</td>
<td>5.27</td>
<td>31.36</td>
<td>4.84</td>
<td>35.38</td>
<td>4.91</td>
</tr>
<tr>
<td>4. Life satisfaction</td>
<td>.10</td>
<td>.28**</td>
<td>.41**</td>
<td>—</td>
<td>13.73</td>
<td>2.84</td>
<td>13.84</td>
<td>2.91</td>
<td>13.02</td>
<td>3.25</td>
<td>14.89</td>
<td>2.53</td>
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**TABLE 2**

Means, Standard Deviations, and Intercorrelations Among the Study Variables
interventions on the dependent variables of concern, control, curiosity, life satisfaction, and future aspirations. The analysis revealed significant differences between the two groups (online vs. traditional intervention), Wilks’s $\lambda = .929$, $F(1, 195) = 5.839$, $p = .010$. At the univariate level, a significant difference in control emerged, $F(1, 198) = 5.662$, $p = .001$. Specifically, the traditional intervention group reported higher mean values at pretest than did the online intervention group. A $t$-test analysis conducted to evaluate gender differences between dependent variables showed no significant difference at the pretest between boys and girls ($p > .05$).

A repeated-measures MANOVA was conducted to verify gender (boys vs. girls), treatment condition (traditional vs. online), and time (pre- and postintervention) differences in any of the dependent variables. As seen in Table 2, the repeated-measures MANOVA showed a main effect for treatment condition (between variables), Wilks’s $\lambda = .886$, $F(5, 194) = 6.135$, $p = .001$, $\eta^2 p = .114$. Specifically, the online intervention group presented more concern, control, curiosity, life satisfaction, and future aspirations than did the traditional group. The MANOVA also showed a main effect for time (within variables), Wilks’s $\lambda = .602$, $F(5, 194) = 25.126$, $p = .001$, $\eta^2 p = .345$. Specifically, the postintervention means were higher than the preintervention means. A main effect for gender was not observed, Wilks’s $\lambda = .954$, $F(5, 192) = 2.316$, $p = .06$. Significant interaction for Gender × Time was not observed, Wilks’s $\lambda = .826$, $F(5, 192) = 6.535$, $p = .51$.

Significant interaction was yielded for Gender × Treatment Condition, Wilks’s $\lambda = .983$, $F(5, 191) = 0.826$, $p = .005$, $\eta^2 p = .075$. At the univariate level, the following variables revealed significant differences: curiosity, $F(1, 196) = 8.749$, $p = .003$, $\eta^2 p = .002$, and life satisfaction, $F(1, 196) = 13.420$, $p = .001$, $\eta^2 p = .043$. Bonferroni-corrected post hoc comparisons revealed that, regardless of the time (pre- and postintervention measurements), boys of the online intervention condition produced higher mean scores on curiosity and life satisfaction than did girls.

Significant interaction also occurred for Treatment Condition × Time, Wilks’s $\lambda = .657$, $F(5, 197) = 13.230$, $p = .001$, $\eta^2 p = .172$, as seen in Table 2. At the univariate level, the following variables revealed significant differences: concern, $F(1, 196) = 56.91$, $p = .001$, $\eta^2 p = .070$; curiosity, $F(1, 196) = 29.090$, $p = .001$, $\eta^2 p = .107$; life satisfaction, $F(1, 196) = 23.439$, $p = .001$, $\eta^2 p = .062$; future aspirations, $F(1, 196) = 20.317$, $p = .001$, $\eta^2 p = .115$. Bonferroni-corrected post hoc comparisons revealed that, regardless of gender, students in the online intervention group showed more concern, curiosity, life satisfaction, and categories used to describe their future aspirations than did the traditional intervention group. Lastly, no significant interaction was yielded for Gender × Treatment Condition × Time, Wilks’s $\lambda = .983$, $F(5, 191) = 0.839$, $p = .502$.

**Discussion**

As a result of the economic crisis that affected the markets of the majority of Western countries, in some nations, policies have begun to reduce funding in support of services, including career counseling services (Harris-Bowlsbey, 2013). At the same time, we have witnessed the development of technology that offers an important opportunity for the field of career counseling (Sampson & Osborn, 2015). Online
programs and new technologies can favor less expensive assessment, information, and career planning support, but, at the same time, they need to be developed and tested to reach high-quality levels. In this study, we developed and initially tested an online career counseling program inspired by the life-design approach. The program aims to engage early adolescents in planning about their future work activities and educational alternatives. It also seeks to encourage them to take more responsibility for, devote effort to, and commit to their futures; support exploratory behavior about work, occupations, and career paths; and increase their life satisfaction.

Our findings indicated that students in the online intervention group showed higher levels of concern, control, curiosity, and life satisfaction than did those in the traditional intervention group. Results seem encouraging, taking into account the partial eta-squared values, which were between .06 and .14 and can be considered medium. The students from the online intervention group also indicated future aspirations that take into greater account some key aspects of the life-design approach, such as self-determination and attention to choice processes, description of work activities rather than specific occupations, indication of dreams/expectations/goals about their futures, strengths, life satisfaction, attention to relationships, and investment in training.

The highest levels of concern may be due to the fact that teenagers are being pushed to consider their futures and to concentrate on the educational and professional pathways that are important for them (Hartung, 2013; Savickas, 2013). Regarding control, inviting the students to “have the last word” on what is important to them, considering the advantages associated with it, and making them aware that what is done today can characterize future well-being may have stimulated in them greater responsibility for their future. This is in line with Duffy (2010), who argued that the assumption of responsibility for the future fosters greater investment. Regarding curiosity, the best results may be due to emphasis on the importance of exploring, gathering information about themselves and the environment, focusing on satisfying future projects, and looking for strengths in relation to the different dimensions (Savickas, 2013). Asking students to elaborate on their strengths and writing micronarrations about how they could use them in their futures could have encouraged students to integrate self-representations in a better way, favoring a greater sense of satisfaction (McAdams, 2011). In the end, as suggested by Christensen and Johnston (2003), making people reflect on important future issues can foster new narratives that can help people give greater meaning to their lives. Therefore, having students reflect on some aspects dear to the life-design approach, such as self-determination, multiple work activities, dreams and goals, and the importance of education, has stimulated new narratives that are richer in aspects useful for a career design that is more in tune with our times.

Regarding gender, we cannot say that programs like ours seem to especially help male students; this may be related to the fact that the technology that we used (i.e., videos and simple interactive computer activities, with the request to write, print, and save files) is perceived to be appropriate by both boys and girls and offers the possibility of
involving the younger generation in an interactive way, regardless of gender (Hargittai & Shafer, 2006; Rainie, 2010).

In general, our results agree with Harris-Bowlsbey (2013), who said that the use of computer-assisted career guidance systems with adolescents to help them focus on their professional goals could stimulate more investment in their futures. Our findings also suggest that it is possible to devise a low-cost intervention based on the life-design approach that focuses on career adaptability and therefore strengthens a series of individual resources to handle developmental tasks to prepare for future careers and cope with difficult times.

**Implications for Practice**

Our work has shown that it is possible to train career counselors and teachers on the important issues of the life-design approach. This also facilitates the dissemination of a culture of updated design professionals who have the ability to manage a program such as the one presented with large groups of students interested in thinking about their future. Programs like this can be used in school contexts to provide inexpensive, effective services (Harris-Bowlsbey, 2013), so that families may bear the costs if school funds are no longer available. Thanks to these programs, practitioners could identify situations that may be more at risk, particularly with regard to boys. They could also check with these students to find out if there is the need for further activities, such as face-to-face career counseling sessions.

**Limitations and Future Research Directions**

Even if the findings are encouraging, our work presents some limitations. First, the findings and reflections reported herein refer to the northeastern Italian school context. We hope that future research will recruit participants from other Italian regions, with the aim of verifying the generalizability of the considerations formulated herein. The 1, 2, 3 . . . Future! program was developed for students in their last year of middle school; future research involving the assessment of online career counseling interventions should involve students of different ages. Furthermore, the satisfactory assessment of training efficacy should not be limited to recording changes that occur only a few weeks after program completion. Future research should also include 6- and 12-month follow-ups to check if the students maintain and generalize the abilities that were the focus of the intervention. It would be important to replicate the work using an instrument that specifically measures middle school students’ adaptability. Future research could also consider the impact that an online career counseling intervention can have on other variables linked to the life-design approach, such as hope and optimism, and narrations about the future of young adolescents. Also, assessing the intervention effectiveness with different technology tools (e.g., computer, tablet, smartphone) through which the program is delivered could be important. Despite the present study’s limitations, the current results seem to confirm that this online program increases the concern dimension of career adaptability of young adolescents, namely the identification of educational and professional paths to be taken,
accountability and future investment, curiosity about work, occupations, career paths, and life satisfaction.

References


