

Direct and indirect pathways to QoL in the transition to adulthood in youth and young adults with disabilities

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Abstract.

OBJECTIVE: The aim of this study was to understand how the characteristics of self-determination (i.e., choice, problem-solving, goal setting) and factors associated with resilience (i.e., support and self-efficacy) relate to each other, including the relationship these variables have on quality-of-life (QoL) for individuals with disabilities.

METHODS: Data were collected from 195 youth and young adults with disabilities.

RESULTS: Results indicated self-efficacy as a critical skill, showing positive associations with behavior of choice and QoL. In addition, social support emerged as an important factor in the development of self-determination skills. The findings also indicated that an individual's financial situation assumed a mediator role between self-determination components and QoL. Through structural equations modeling (SEM), a model representing the relationships between these variables was designed.

Keywords: Quality-of-life, transition, self-efficacy, support, self-determination, survey research

1. Introduction

Having a disability, living in poverty, and/or experiencing health problems are conditions that often put youth at risk for not doing well in life (Bandura, 1997). Research has shown that this risk can be mitigated if competencies are cultivated, such as self-determination and self-advocacy, having a positive effect on the long term post-school outcomes of youth with disabilities (Murray, 2003). Additionally, some factors which have been associated with success in life (e.g., self-efficacy and social support) are also elements that appear in the literature on risk, resilience, and quality-of-life (QoL) (Bandura, 2009; King, Cathers, Polgar, MacKinnon, & Havens, 2000).

Youth and young adults who have positive post-school outcomes, despite finding themselves in situations of vulnerability and increased risk, have been called resilient (Werner & Smith, 2001). Resilience is a concept that describes the notion of doing well in life despite adversity (Rutter, 2012), and is one of the factors identified by some authors that contributes to successful transition to post-school life (Osgood, Foster, & Courtney, 2010). For example, social support is a factor associated with resilience that has been linked with success in adult life (for example, Kim & Fox, 2006).

According to Bandura (1998), social supports guide individuals in overcoming the obstacles and stresses encountered in the life paths people take. Individuals need social supports to give incentive, meaning, and worth to what one wants to do. Schuh, Sundar and Hagner (2014) found in a qualitative study that participants with and without disabilities viewed

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friendships and personal relationships as essential to achieving their goals. Another qualitative study by King et al. (2000), illustrated the connection between the relationships to others and success in life. Some key psychosocial factors identified as supporting youth in becoming successful included: being accepted by others, being believed in, and youth's belief in themselves.

A construct related to "believing in yourself" is the conceptualization of *self-efficacy* proposed by Albert Bandura. Self-efficacy is defined as "people's judgments in their capabilities to organize and execute courses of action required to attain designated types of performance" (Bandura, 1986, p. 391). Self-efficacy is important as people often choose goals for themselves due in part to their efficacy beliefs, how much effort they expend, how long they persevere, and how resilient they are in the face of failures and setbacks (Bandura, 1997). Betz and Hackett (1981) found that perceived self-efficacy had a positive relationship with the range of career options considered and the degree of interest shown by both males and females without disabilities.

Bandura's (1997) self-efficacy theory focus on the interrelationships among self-efficacy, outcome expectancies, and behavior. According to Bandura (2009), perceived self-efficacy occupies a pivotal role because of its impact on human functioning directly, and through other important classes of determinants. These determinants include: goal aspirations; outcome expectations; and, socio-structural facilitators and impediments (perceived impediments and opportunity structures in social systems). Thus, people who believe in their efficacy have more control in their environments. Self-efficacy has an effect on individual's choice of careers and the course of their lives: individuals with greater self-efficacy tend to consider more career options, show greater interest in them, prepare themselves better for different careers, and persevere more in their chosen pursuits (Bandura, 1997).

According to King et al. (2000), belief in oneself and abilities leads to having the confidence to try new things, to challenge oneself, and to develop new skills. This openness to new experiences allows setting and meeting new goals to help feel a sense of success in life. People motivate themselves by forming beliefs about what they can do, anticipating likely outcomes, setting goals, and planning courses of action (Bandura, 1997). Attributions of efficacy, outcome expectancy and goal-setting are all component elements of self-determination. In the scope

of individual competencies that can affect the post-school outcomes of youth with disabilities, one of the most promising areas of work is related to the concept of self-determination (Wehmeyer & Schwartz, 1997).

Wehmeyer suggests a definitional framework in which self-determination refers to "volitional actions that enable one to act as the primary causal agent in one's life and to maintain or improve one's quality of life" (1996, p.22). In this definitional framework, an act or event is self-determined if the individual's action(s) reflect four *essential characteristics*: (1) the individual acts autonomously; (2) the behaviors are self-regulated; (3) the person initiates and responds to event(s) in a psychologically empowered manner; and (4) the person acts in a self-realizing manner (Wehmeyer, 1996). These essential characteristics that define self-determined behavior emerge through the development and acquisition of multiple, interrelated component elements, including: choice-making skills, decision-making skills, problem-solving skills, goal-setting and attainment skills, positive attributions of efficacy, and outcome expectancy (Wehmeyer & Field, 2007). For example, self-determination has been linked to positive outcomes for individuals with disabilities. In a systematic review of the secondary transition correlational literature identified in-school predictors of improved post-school outcomes for students with disabilities, Test, et al. (2009) found that students with higher self-determination skills were more likely to be engaged in post-school employment and post-secondary education. Other studies provide direct evidence that promote the component elements of self-determination can result in more positive adult outcomes.

Difficulties in employment, community, and independent living situations for students with disabilities have often been linked to limitations in problem solving skills (Gumpel, Tappe, & Araki, 2000). Research suggests that problem solving skills offer effective methods for increasing social integration contributing to more positive workplace social interactions (Storey, 2002) and improved employment outcomes for supported workers (O'Reilly, Lancioni, & O'Kane, 2000). Teaching students with disabilities a self-regulated problem-solving process enables them to self-direct learning and to achieve educationally relevant goals, including transition-related goals. Agran and Wehmeyer (2000) found that by teaching students to set goals, take action on those goals, and adjust their goals and plans as needed, students

with disabilities could successfully self-direct learning toward transition-related goals.

Self-efficacy is another component of self-determination that has been related positively to outcomes for youth with disabilities. Madaus, Ruban, Foley, and McGuire (2003) found that self-regulatory strategies and perceptions of employment self-efficacy were significant predictors of employment satisfaction in a sample of university graduates with disabilities. In fact, these two factors explained more than half of the variance in job satisfaction ratings alone, and more than two-thirds of the variance when examined in concert with several other variables.

Self-determination is also a critical skill because it allows individuals with disabilities to be responsible for making their own choices in life (McCullin & Obiakor, 2010). The lack of opportunities to make choices leads people with disabilities to feel stressed and diminished when they are unable to make decisions regarding their own life (Canha, Simões, Owens, & Matos, 2012; Kennedy, 1996). Brown and Brown (2009) suggest that choice is a fundamental aspect of quality of life, in that it is the outward manifestation of an individual's personal wishes and the life direction he or she wishes to take.

The concepts of quality of life (QoL) and self-determination are linked in theory. Schalock (2004) proposed that self-determination is one of eight core dimensions of quality of life and there is empirical evidence about the importance of self-determination to enhance QoL. Lachapelle et al. (2005) found that essential characteristics of self-determination predicted a high QoL and, self-determination and QoL were significantly correlated. Further, Verdugo, Martín-Ingelmo, Urríes, Vicent, and Sánchez (2009) suggested that to promote quality of life for people with disabilities, it is important to ensure that their environments do not restrict opportunities to choose, learn and practice skills that enable individuals to be the causal agents of their own lives.

Another dimension of quality of life that can be considered an environmental factor is socioeconomic status (SES). Studies have indicated that youth from low socioeconomic status (SES) backgrounds are less likely than their peers from higher SES backgrounds to experience positive outcomes (Newman et al., 2011). However, it is important to note that low socioeconomic status (SES) for youth with disabilities is not always linked to poor outcomes as adults. A recent study by Wagner, Newman, and Javitz (2014) found that socioeconomic status had a statistically significant, but relatively small effect

on student outcomes (high school graduation, post-secondary education enrollment, and employment).

The purpose of this study was to design a model of Transition-Related Factors and QoL Model (TRfQoL) that represents the relationships among key factors in the transition planning process that emerged from previous literature, including sub-components of self-determination and factors associated with resilience, and the relationship these factors have with quality-of-life in the transition process.

Since Schalock (2004) proposed that self-determination is one of eight core dimensions of QoL and Wehmeyer proposed a definitional framework of self-determination in which self-determination impacts an individual's quality of life, the first research question addressed in this study was to verify how self-determination components (i.e., behavior of choice, problem-solving, and goal setting) are related with QoL.

The second research question examined the extent to which perceived self-efficacy is associated with an individual's ability to set goals and make choices about their future life, and the role of the financial situation in these relationships.

Many research studies have investigated resilience in children who are at risk due to situational or environmental factors, but few studies have examined the resilience of children with disabilities (Specht, Polgar, & King, 2003). Since self-efficacy and social support are conceptually linked to resilience (Prince-Embury, 2007), the third and final research question for this study was to test the extent to which these resilience factors are associated with self-determination factors and QoL.

Given these research questions and the previous literature, an initial model was built to explain the connections between self-determination characteristics (i.e., problem solving, goal setting, and behavior of choice) and resiliency-associated factors (i.e., support and self-efficacy) with QoL. The patterns of relationships among the constructs were tested via structural equation modeling. The paths traced by the initial model are explained in more detail in the following. First, given that self-determination impacts an individual's quality of life (Lachapelle et al., 2005), the initial model expected that all self-determination components have a positive impact on QoL. Second, since social support is associated with better well-being and perceptions of happiness, including success in life, support is expected to have a positive association with QoL. The third set of

relations identified in the initial model was derived from the Bandura's self-efficacy model. According to Bandura, self-efficacy affects behavior directly and through its impact on goals and also indirectly through the perception of socio-structural facilitators and impediments. Thus, in the TRfQoL initial model, self-efficacy has a direct association with behavior of choice directly, but also indirectly, through its association with goal setting and financial situation (the socio-structural factor for the purposes of this study). Finally, since problem solving skills are important for increasing social integration (Storey, 2002) and to achieve relevant goals (Agran & Wehmeyer, 2000), the TRfQoL initial model showed problem solving skills having a positive association with support and goal setting (see Fig. 1).

2. Method

2.1. Study design and setting

The study was conducted in Portugal using a convenience sample of 195 adults with disabilities institutionalized ranging in age from 15–39. Participants were recruited from 12 nonprofit institutions

that support individuals with disabilities, common throughout Portugal. The institutions were located in five different regions of the continental territory of Portugal and Madeira Island. Individuals with disabilities typically spend all day in these institutions and in some cases, live there as well. Four of these institutions supported youth and adults with intellectual disabilities; seven specialized in supports for individuals with physical disabilities. The final institution did not have any specific disability focus. Despite the disability focus of each institution, each also supported individuals with various disabilities. Five of the institutions were located in a large metropolitan area and more than half of the respondents (58%) were selected from these five settings. The remaining respondents came from institutions located in medium-sized towns (21%) and small rural areas (21%).

Twenty institutions were contacted via letter with a follow up phone call. An explanation of the study, the instruments used, and the characteristics of the youth or adults with disabilities (i.e., 15 years or older with the ability to read), and conditions for the study (i.e., small groups, classroom, one support person from institution to assist) were provided to the President of each institution. Three of the institutions contacted

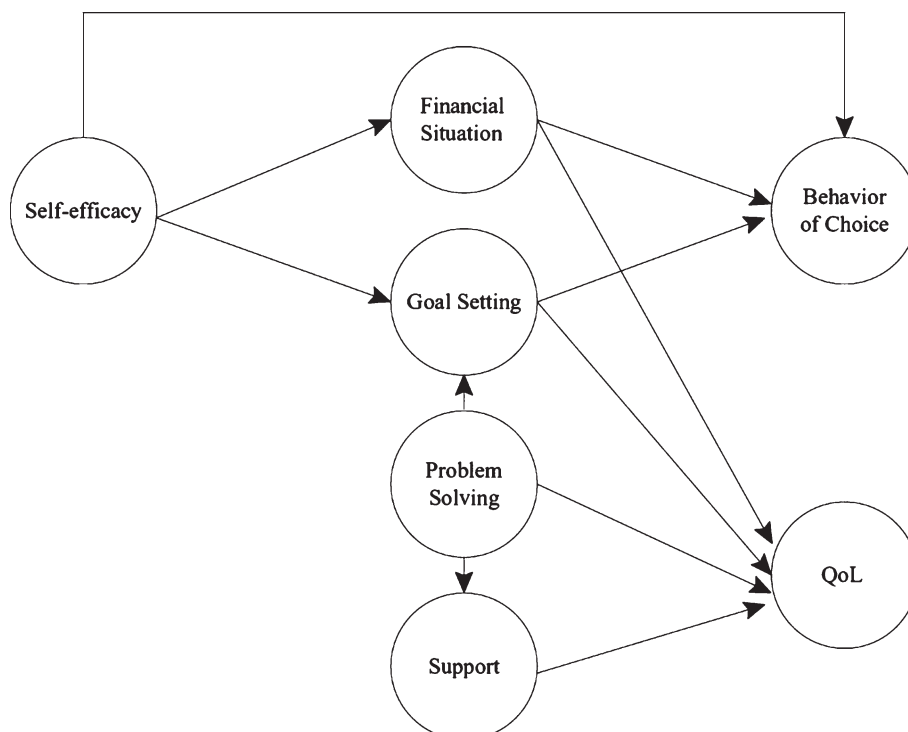


Fig. 1. Transition-Related Factors and QoL Initial Model.

did not have the type of participants needed for this study. Twelve of the institutions contacted agreed to participate in the study.

All participants were informed about the confidentiality of their responses and participants signed voluntary informed consent form.

2.2. Sample

The initial sample for this study included 200 individuals with disabilities from twelve organizations in Portugal. Five individuals were excluded from the study due to age (they were over the age of 40). As shown in Table 1, the final study sample included 195 individuals. The sample respondents were not balanced in terms of gender. Among the respondents there were more males 63% ($N=122$) than females 37% ($N=73$). However, the mean age between males ($M=21.7$) and females ($M=22.2$) did not differ significantly, [$F(1,195)=-5.64, p=0.574$].

Table 1
Demographic characteristics by age, academic grade, disability type and occupation

	<i>N</i>	<i>M (SD)</i>
Age in years	192	21.9 (5.80)
<i>Ranges</i>		%
15–17	52	(27.1%)
18–21	64	(33.3%)
22–27	41	(21.4%)
28–32	22	(11.5%)
33–39	13	(6.8%)
Total	192	(100%)
<i>Gender</i>		
Male	122	(62.6%)
Female	73	(37.4%)
Total		
<i>Academic Grade</i>		
1st–4th	13	(6.9%)
5th–9th	144	(76.6%)
10th–12th	29	(15.4%)
Tertiary	2	(1.1%)
Total	188	(100%)
<i>Disability</i>		
ID	129	(66.2%)
Physical	35	(17.9%)
EBD	14	(7.2%)
Sensorial	6	(3.1%)
LD	4	(2.1%)
Other	7	(3.5%)
Total	195	(100%)
<i>Occupation</i>		
Training	165	(84.6%)
Occupational	13	(6.6%)
Student	9	(4.6%)
Occup./Community Work	8	(4.1%)
Total	195	(100%)

The overall mean age of the respondents was 21.9 years ($SD=5.8$) with a range from 15 to 39 years old (see Table 1). The majority of respondents were attending a training course (85%) within the institution they attended. A small number of respondents were attending an inclusive school (5%), others were involved in occupational activities (i.e., knitting, crafts, etc.) (7%). A small percentage (4%) of the total number of respondents was involved in some kind of part-time work in the community. The majority (66%) were diagnosed with intellectual disabilities (ID), followed by physical disabilities (18%), with a few classified as having emotional behavioral disorders (EBD) (7%), sensorial impairments, (3%), learning disabilities (LD) (2%), or others (4%).

2.3. Measures

Participants were asked to respond to self-report questionnaires assessing the following factors: self-determination, resilience, and QoL. Three self-report instruments were used for this study: Youth Quality of Life – Surveillance Version, Resiliency Scale for Children and Adolescents (RSCA), and the Self-Determination Scale (SDS). A description of each scale is detailed below.

2.3.1. Quality-of-life

The quality-of-life was assessed through Youth Quality of Life Instrument – Surveillance Version (YQOL-S). The YQOL is a generic quality of life (QoL) measurement designed for youth with and without disabilities. The items from YQOL-S scale were selected from the 41 items Research Instrument of this scale (Topolski, Edwards, & Patrick, 2002; Topolski et al., 2001). The YQOL-S includes 10 perceptual items (e.g., “I am satisfied with the way my life is now”), each rated by adolescent respondents on an 11-point scale ranging from 0 = not at all true 10 = to completely true. Perceptual items are those known only to the adolescents themselves, and cannot be observed by others. The instrument was translated to Portuguese following the procedures of the linguistic validation proposed by the authors.

The preliminary validity of the YQOL-R perceptual module yielded scores with acceptable internal consistency ($\alpha=0.77$ to 0.96), reproducibility (ICCs = 0.74 to 0.85), expected associations with other measured concepts, and the ability to distinguish among know groups (Topolski et al., 2001).

2.3.2. Resiliency Scale for Children and Adolescents: Self-efficacy and support

Self-efficacy and support were assessed through the Resiliency Scale for Children and Adolescents (RSCA). The RSCA Scale (Prince-Embury, 2006, 2007) offers an assessment of several personal qualities that are critical for resilience in youth. The design of the RSCA took into account the reading level of words and sentence complexity by breaking constructs down into items written in as simple language as possible (Prince-Embury, 2009). The 64-item self-report instrument consists of three Resiliency Scales, each one with subscales, that may be used together or as stand-alone scales measuring: Sense of Mastery Scale (measures optimism, self-efficacy, and adaptability); Sense of Relatedness Scale (measures trust, support, comfort and tolerance); and Emotional Reactivity Scale (measures sensitivity, recovery and impairment). For the purpose of this study, the following sub-scales were used: the Self-efficacy subscale from the Sense of Mastery scale and the Support subscale from the Sense of Relatedness scale. These scales were selected because they represented the constructs identified for this study. Responses are provided on a 5-point scale: 0 = never, 1 = rarely, 2 = sometimes, 3 = often, and 4 = almost always.

This instrument has been shown to have adequate internal consistency. Test-retest reliability correlation coefficients for the three global scales ranged from 0.79 to 0.95.

2.3.3. Self-Determination Scale: Behavior of choice, problem-solving and goal-setting

The components of self-determination were assessed through Self-Determination Scale (SDS). The Arc's Self-Determination Scale (SDS) (Wehmeyer & Kelchner, 1995) is a student self-report measure of self-determination designed for use by adolescents and adults with disabilities. The SDS consists of 72-items addressing overall self-determination by measuring individual performance in the four essential characteristics of self-determination identified by Wehmeyer, Kelchner, and Richards (1996): autonomy (measures choice and independence), self-regulation (measures interpersonal cognitive problem-solving and goal-setting), psychological empowerment, and self-realization (measures self-knowledge and self-awareness). For the purpose of this study, only the following sub-scales were considered: Choice-Post-School Directions from the Autonomy Scale

and Cognitive Problem-Solving and Goal-Setting from Self-Regulation Scale. These subscales were selected because they represented the constructs expressed on the objectives of the study.

The Behavior of Choice related to post-school directions was assessed through Post-School Directions subscale of SDS Autonomy scale. The Autonomy scale has two sub-domains: choice and independence. The choice sub-domain, which is conceptualized as "acting on the basis of preferences, beliefs, values and abilities" (Wehmeyer & Kelchner, 1995), embraces the Post-School Directions subscale as one of its four areas. Students respond to each item statement with the following responses; 0 = I do not even if I have the chance, 1 = I do sometimes when I have the chance, 2 = I do most of the time I have the chance, 3 = I do every time I have the chance.

Interpersonal Cognitive Problem-Solving and Goal-Setting and Task Performance are the two sub-domains of the Self-Regulation scale. Interpersonal Cognitive Problem-Solving sub domain involves six story-based items where the student identifies what he or she considers the best solution to a problem. Student responses are scored on a scale of 0 to 2 points, depending on the effectiveness of the solution to resolve the problem. Goal-Setting and Task Performance domain asks students to identify three goals in three life areas - independent living, work and transportation - and identify steps they need to take to achieve these goals. For the purpose of this study, the following question was used representing the work goal: "Where do you want to work after you graduate?" Points are accumulated based on the presence of a goal and the number of steps identified to reach that goal ranged from 0 = I have not planned for that yet to 3 = identify 3 or 4 steps to get the goal.

The Coefficient alpha for the scale as a whole was 0.90. Alpha for Autonomy domain was 0.90, for the Psychological Empowerment domain was 0.73, and for the self-realization domain was 0.62 (Wehmeyer & Kelchner, 1995). According Wehmeyer the last two domain values were lower representing a usual and expected result for measurements examining beliefs and perceptions. The Self-determination scale was norm referenced with 500 students with and without cognitive disabilities in rural, urban, and suburban school districts across five U.S. states.

2.3.4. Perception of financial situation

Because poverty is linked to QoL, and the financial situation can be considering a socio-structural

Table 2
Fit Indexes of the initial YQOL-S model and the model with the elimination of parameters (one item)

	χ^2 (df) ^a	CFI ^b	NNFI ^b	RMSEA (90% C.I.) ^b	SRMR
Initial Model	66.4448*** (35)	0.92	0.90	0.068 (0.042–0.092)	0.062
Step 1	52.2840** (27)	0.93	0.91	0.069 (0.040–0.097)	0.060

Note. Satorra-Bentler χ^2 =, $P < 0.001$; CFI =.; NNFI =.; RMSEA =.; SRMR = 0.071. ^aSatorra-Bentler; ^bRobust. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Step 1 – Removal of the item “I feel alone in my life”.

determinant affecting interrelationships between self-efficacy, outcomes expectations and behaviors, namely self-determination behaviors, the authors included a question on perception of financial situation. To evaluate this variable was asked to respondents to report their family financial situation perception on a 5-point scale as following responses options: (1) very good, (2) = good, (3) = on the average, (4) = bad, (5) = very bad (Currie, Levin, & Todd, 2011).

In total, the three instruments took an average 60 to 90 minutes for the participants to complete. Halfway through the completion of the questionnaires, participants took a short break. The survey was administered between May 2012 and July 2013.

2.4. Statistical procedures

A Confirmatory Factor Analysis (CFA) was run with 195 respondents to confirm the factorial structure of the several scales studied. The goodness-of-fit estimates reported correspond to the robust solution (except for Standardized Root Mean-Square Residual - SRMR). In addition, the Satorra-Bentler Chi-square (Bentler & Yuan, 1999) and robust fit indices were used. Good models have a Comparative Fit Index (CFI) and Bentler-Bonett Non-Normed Fit Index (NNFI) of 0.95 or above and Root Mean-Square Error of Approximation (RMSEA) and SRMR of 0.05 or below (Bentler, 1995). Lagrange Multiplier Test (LM Test) test were used to verify if new parameters need to be included in the model. The goodness-of-fit indices estimates reported correspond to the robust solution (except for SRMR). Wald Test (WTest) was used to verify if all parameters were considered important to the specified model. Structural equations modeling (SEM) analyses were carried out to reach a model representing relationships among keys variables that emerged as pivotal for a successful transition process based on literature and previous studies, as expressed on the objectives of the study. The Structural Equation Modeling (EQS) 6.1 software, was used for these analyzes.

In sum, through CFA and SEM analysis, scales and model structure were modified as determined through *post hoc* model-fitting procedures based on: first, items were eliminated if its saturation for the construct factors were less than .40; second, new parameters were introduced based on LM Test results; third, parameters were eliminated based on their validity in the model based on the WTest. Missing values were imputed to mode.

3. Results

3.1. Confirmatory Factor Analysis

3.1.1. Quality of life

A Confirmatory Factor Analysis (CFA) was run to confirm the 10 item factor structure of the YQOL-S. The item “I feel alone in my life” was deleted because its factor loading was 0.03 (below 0.40 as mentioned in the analysis section). As a result, an estimated new measurement model was identified. The indices of the initial YQOL-S and the new/final model are shown in Table 2. This final version of the YQOL-S scale showed good internal consistency Scale ($\alpha = 0.84$).

3.1.2. Resiliency Scale for Children and Adolescents: Self-efficacy and support

CFA was conducted to confirm total RMAS scale and REL total scale. On these analyses in relation to *self-efficacy subscale* the items “If at first I don’t succeed, I will keep on trying” and “If I try hard, it makes a difference” were deleted because their factor loading was lower than .40 when the CFA were tested for all RMAS subscales. On the *support subscale* CFA all the items were maintained. The factors associated with resilience (support and self-efficacy) were presented in the model associated with each other once they are measures from the same construct. WTest showed that this association was considered important to the specified model. These two RSCA scales showed the following internal consistency: for *self-efficacy subscale* $\alpha = 0.78$ and for *support subscale* $\alpha = 0.92$.

3.1.3. Self-Determination Scale: Behavior of Choice, Problem-Solving and Goal-Setting

Before running CFA with the self-determination scale, the *Optimal Scaling* method was used. The option to use this method was due to the reduced number of categories of SDS factors. In fact, according Bentler and Chou (1987 cited by Byrne, 2006) continuous methods can be used with ordinal or nominal variables only when variable has four or more categories. Since SDS subscales have less than four items, except the autonomy subscale that has four categories, optimal scaling method was used for all the SDS factors for coherence reasons (for more details about optimal scaling method see Capucha et al., 2004).

3.1.3.1. Behavior of Choice – Post-School Directions. A CFA was run to confirm the five items factor structure of post-school direction sub-domain. However because two items loaded less than .40 with others items for the construct factor, they were deleted from the analysis. The factor analysis was recomputed with the remaining subset items. The results of these specifications in the model are shown in Table 3. The χ^2 value had a drop in each of the steps related to the elimination of the items and is not significant. The CFI and the other fit indices had shown an improvement for each step, especially on the first step and the final version showed a good fit indices (CFI = 0.995; NNFI = 0.981; RMSEA = 0.062; SRMR = 0.030). On the final model the WTest test confirmed that all parameters included in the initial model are significant and, therefore and the LM test did not show any parameters not contemplated in the original model that may improve its adjustment. The final version of the scale, without the two eliminated items, showed good internal consistency ($\alpha = 0.73$).

3.1.3.2. Problem-Solving and Goal Setting. The fit indices held in the CFA to confirm the six story-based items factor structure of *Interpersonal Cognitive Problem-Solving subdomain* were indicative of a

good-fitting model (Satorra-Bentler $\chi^2 = 44.1275$ (35), $p = 0.13862$; CFI = 0.991; NNFI = 0.984; RMSEA = 0.055; SRMR = 0.032). The Lagrange Multiplier (LM) test did not show any parameters not contemplated in the original model that may improve its adjustment. The Wtests confirmed that all parameters included in the initial model were significant.

3.2. Transition-Related Factors and QoL Model (TRfQoL)

With Structural Equation Modeling (SEM) analysis we attempted to validate a pattern of relationships among the variables on the initial Transition-Related Factors and QoL Model (TRfQoL). Because the initial model was mapped from a review of the empirical literature on the transition of youth with disabilities to adult life, it was highly possible that other paths should be added, whereas other paths already specified in the model would not be worthy for inclusion (Byrne, 2006). The final model is a result of all of these new paths building through LM Test and Wald Test analysis. As can be seen in Table 4, the overall goodness-of-fit statistics of the initial model suggests that the fit of the data to the hypothesized model is not entirely adequate.

The Lagrange Multiplier Test (LM Test) analysis showed that the introduction of links between factors (regression coefficients) – more specifically the associations established by financial situation with QoL and goal setting, and between QoL and self-efficacy – lead to significant decreases in the value of chi-square. We chose to introduce them and re-estimate the model (Table 4, Step 2). The results obtained after the introduction of these parameters show that the levels of adequacy of the model emerge as better adjusted. Finally, we analyzed the results obtained in Wald test, which showed the existence of five non-significant connections, specifically the connection between QoL and self-determination components (behavior of choice, goal setting, problem solving), relations established by self-efficacy with goal set-

Table 3

Fit Indexes of the initial Behavior of Choice – Post-School Directions model and the model with the elimination of parameters (two items)

	χ^2 (df) ^a	CFI ^b	NNFI ^b	RMSEA (90% C.I.) ^b	SRMR
Initial Model	8.4523 (5)**	0.98	0.96	0.060 (0.000–0.126)	0.047
Step 1	4.0712 (3)**	0.99	0.90	0.043 (0.000–0.135)	0.038
Step 2	1.7565 (1)**	0.99	0.98	0.062 (0.000–0.212)	0.030

^aSatorra-Bentler; ^bRobust. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Step 1 – Elimination of the item “I have looked into job interests by visiting work sites or talking to people in that job”. Step 2 - Elimination of the item “I am in or have been in career or job classes or training”.

Table 4
Fit Indexes of the initial and final Transition-Related Factors and QoL Model (TRfQoL)

	χ^2 (df) ^a	CFI ^b	NNFI ^b	RMSEA (90% C.I.) ^b	SRMR
Step 1	720.5362 (516)***	0.90	0.89	0.045 (0.037–0.053)	0.077
Step 2	703.3918 (513)***	0.90	0.89	0.044 (0.035–0.051)	0.071
Step 3	709.2017 (519)***	0.90	0.90	0.043 (0.035–0.051)	0.076

Note. ^aSatorra-Bentler; ^bRobust; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; Step 1 – Initial Model, Step 2 – Introduction of parameters, Step 3 – Elimination of parameters/Final Model.

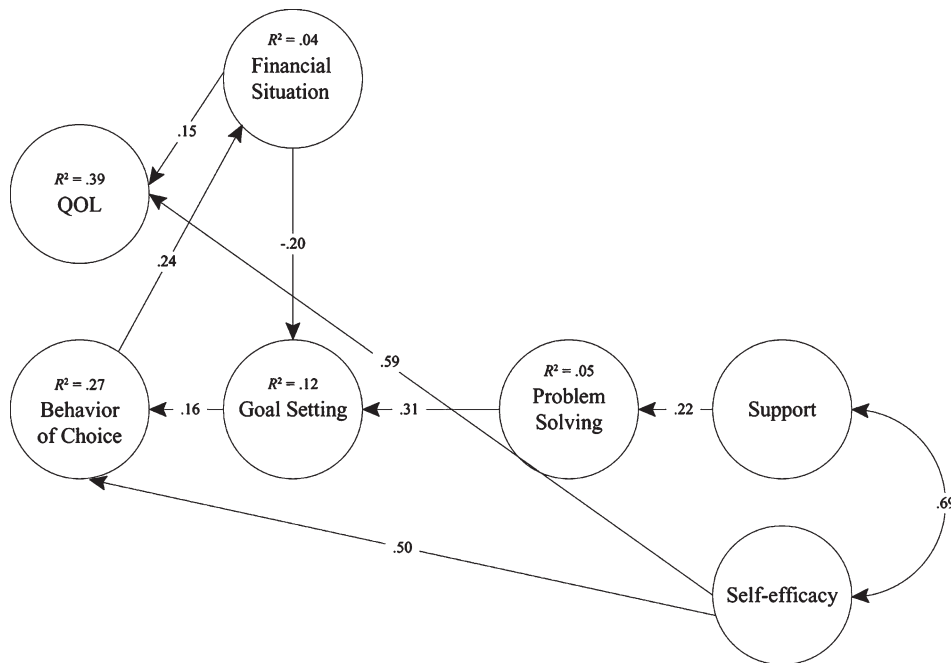


Fig. 2. Transition-Related Factors and QoL Model – self-efficacy, support, financial situation, and self-determination components associations with QoL.

ting and financial situation, relations established by support with goal-setting and QoL. The rates obtained with the elimination of these parameters are presented in Step 3 (Table 4). The TRfQoL final model, with the factor loading (standardized) for the model appears in Fig. 2. The overall goodness-of-fit statistics of the model indicated that the TRfQoL final model sustained a reasonable fit to the sample data (Step 3, Table 4). In the TRfQoL final model, resilient factors, support and self-efficacy, represent the only two independent variables.

Unlike the initial model, self-determination components are not associated directly with QoL, but through its impact on financial situation. As the TRfQoL initial model, self-efficacy is directly associated with behavior of choice but not through its impact on goals and financial situation. Still, in the TRfQoL final model, self-efficacy is directly associated with QoL, but this association was not traced by

the TRfQoL initial model. Finally, the new association established by financial situation with QoL and goal setting in the final model, was not traced by the initial TRfQoL.

Self-efficacy presented the greatest association in the model with the variables QoL ($\beta = 0.59$) and with behavior of choice ($\beta = 0.50$). Goal setting has significant and positive association with problem solving ($\beta = 0.31$) and a significant negative association with financial situation effect ($\beta = -0.20$). For problems solving, only support has a significant association ($\beta = 0.22$).

The explained variance of the relationships shown in the Fig. 2 for dependent variables ranged from 4% to 39%. Self-efficacy, and financial situation explained 39% of the variance in QoL. Self-efficacy and goal setting explained 27% of variance in behavior of choice. Support, explained 15% of problems solving. The variance for goal setting was 12%

explained only by the financial situation factor. Finally, behavior of choice explained 4% of the variance on financial situation.

4. Discussion

4.1. *Self-determination component elements to quality-of-life*

Responding to the first research question, the model in this study provided evidence that self-determination (i.e., goal-setting, solving-problem, behavior of choice) does contribute to an individual's positive QoL although in an indirect way. As the TRfQoL Model paths indicated, there was an association of all self-determination components with QoL mediated by financial situation. Problem solving has an impact on QoL mediated by goal setting, behavior of choice, and financial situation. These results corroborate others studies that showed the contribution of self-determination to change or improvement in a person's quality of life (Wehmeyer & Schalock, 2001; Wehmeyer & Field, 2007).

In this study, behavior of choice was the self-determination factor most closely associated with QoL. In addition, choice is another concept included in the quality-of-life approach, and frequently used in both literature and practice in the field of disabilities (Brown & Brown, 2009). The observed mediator role of financial situation between choice and quality-of-life could be explained by the contribute that material well-being has in QoL (Wang, Schalock, Verdugo, & Jenaro, 2010).

4.2. *Self-efficacy to choice and goal setting*

Based on Bandura's self-efficacy theory, the second objective of this study was designed to investigate the extent perceived self-efficacy impacts an individual's ability to set goals and make choices about their future life. Studies have shown that self-efficacy is an important factor in transition planning. Individuals with a high sense of self-efficacy tend to be more satisfied with their jobs (Madaus et al., 2003; Madaus, Zhao, & Ruban, 2008). The model developed through this study reflects a direct impact of self-efficacy on behavior of choice. This path is also expressed in Bandura's explanatory structural model of human behavior: this model suggested that self-efficacy beliefs predicted choice of behavioral activities, effort expended on those activities, per-

sistence despite obstacles, and actual performance (Bandura, 2004; Barnyak & McNelly, 2009).

According to Bandura's self-efficacy model, self-efficacy beliefs affect behavior both directly but also through its impact on goals and socio-structural factors. In the TRfQoL Model there is a direct association between self-efficacy and behavior of choice but not through the mediation of goal setting or financial situation which is considered the socio-structural factor. It is important to point out that the direct impact of an individual's financial situation on goal setting was negative. This negative relationship means that a poor perception of one's financial situation may possibly lead to set more employment goals and identify more steps needed to take to achieve this goal. This can be explained in part by the relationship existing between socio-structural impediments and goals on socio-cognitive structural model. In fact, according to Bandura (2012), when facing institutional impediments, persons with high self-efficacy figure out ways to surmount them. As such, this relationship may be the demonstration of resilience in the face of adversity, and proof that adversity does not always result in vulnerability (Rutter, 2012). Still, these results are consistent with recent data indicating that students with disabilities from low socioeconomic backgrounds were not necessarily destined to poor outcomes (Wagner et al., 2014).

4.3. *Factors associated with resilience to self-determination components*

The third objective of this study was to test the extent to which factors associated with resilience (i.e., self-efficacy and support) are associated with QoL, and can strengthen or hinder self-determination components associated with successful transition to adult life for youth with disabilities. The TRfQoL Model showed a direct association of support by others and problems solving. According to Field and Hoffman (2012) problem solving in social situations is an example of a skill that is important to assist in forming and maintaining relationships and contributes to increased self-determination. Consistent with other studies, the TRfQoL Model shows that support is also associated with goal setting although in an indirect way (Schuh et al., 2014). Finally, because there is a direct and positive association of problem solving with goal setting and of goal setting with behavior of choice, there is an indirect impact of support in these last two self-determination factors and on QoL.

As already reported, self-efficacy had an association with behavior of choice and an indirect association with goal setting, two self-determination components. Others studies have reported this relation of self-efficacy and self-determination components. For example, Lee et al. (2012) examined individual and instructional predictors of the self-determination of students with disabilities and findings indicated that self-efficacy and outcome expectancy were the best predictors of students' self-determination. In sum, self-efficacy, support, and self-determination components expressed on the TRfQoL Model were all factors that studies have been shown to be related with future employment satisfaction (Madaus et al., 2003). Finally, factors associated with resilience were associated with QoL. Self-efficacy had a strong association with QoL and support had an association with QoL through the self-determination components mediation. This relationship between resiliency factors with QoL is supported by others studies. For example studies have shown the association of a positive psychological well-being with a greater self-efficacy in what concerns employment issues (Barlow, Wright, & Cullen, 2002) and with a positive social support perception (Simões, Matos, Tomé, & Ferreira, 2008).

4.4. *Limitations*

One of the limitations of this study is related to the self-efficacy scale. Through the confirmatory analyses the items related with persistency were eliminated. As a result, we could not measure self-efficacy to the fullest extent as defined theoretically. Related to the self-determination scale, and since self-determination contributes to quality of life and is conceptually one of its components, the measurement overlap between these two constructs can be a caveat. Though, analyzing all the items of latent variables, the concepts assessed by self-determination components and QoL instruments are distinct. Another limitation is related to the financial situation scale. The students mainly lived in the parent's home and responded according to a subjective perception of their family financial situation, within a set of possible responses also of subjective interpretation. Although all the scales were validated with or included a sample of participants with disabilities, none were validated for the Portuguese population, putting some caution on the results achieved interpretation.

Finally, another limitation can be related with the ability to read of participants. Although one of the

criteria for youth participation on the study was be a reader, the complexity of some scales items can may have influenced the answer.

4.5. *Future research*

Due to limitations related to the sample size in this study, future studies with broader populations should explore the relationships established by the final TRfQoL model. Since on the TRfQoL model poor financial situations lead to establish more objectives, future research should better understand to what extent situations of excessive dependence and overprotection alienate young people from the responsibility to set objectives for their lives and develop competences in order to look for a future according to their strengths, weaknesses, needs, and preferences.

Still, given the importance emerged from this study about the role of self-efficacy for self-determination, future studies should explore with more accuracy the role of self-efficacy on transition outcomes as such understand in what extend a focus on self-efficacy can influence the self-determination components development, in particular the ability and opportunity to make choices. Also, future studies should investigate how the ability to persist under adversity, a self-efficacy component not accessed in this study, may influence the studied factors.

Finally it is important to note that although QoL and self-determination are theoretically connected, the fact is that in the final TRfQoL model, self-determination components are linked to QoL through the mediation of the financial situation. In this regard, future studies should further explore the role of the material well-being in relation to self-determination components.

4.6. *Implications for practice*

The relationships established between the factors studied in the TRfQoL Model, bring up new information that have implications for future education for students and young adults with disabilities. The first implication evident from this model is that educators and adult providers should make available activities that enhance self-efficacy. As we can see in the TRfQoL Model, self-efficacy has a critical role on choice behaviors, a skill needed when options are given to students in their transition planning process. In fact, choice making is a skill that is of paramount importance for students planning

for their future and carries into adulthood in order to have more control over their own lives. For example, the *Student-Directed Transition Planning* lessons are an intervention destined to teach transition terms and concepts to provide a means to increase self-determination skills and student participation in transition IEP (Individualized Education Program) meeting discussions that showed good results increasing perceived self-efficacy in transition planning process indicators (Lee et al., 2012). According to self-efficacy theory, judgments are derived from four sources: mastery experiences (i.e., previous successful behavioral performance), modeling (i.e., observation of successful behavioral performance), verbal persuasion and, physiological and affective states at the time of the self-efficacy rating (Bandura, 1997). Direct work experiences involve using these sources to strengthen self-efficacy and can be developed early in the transition planning process (Karpur, Clark, Caproni, & Sterner, 2005; King, Baldwin, Currie, & Evans, 2005). Still, educators should be aware that by promoting self-efficacy, they are at the same time, promoting QoL of youth and adults with disabilities.

A second, implication that emerged was the framework that financial situation assumes in the TRfQoL Model. Individual financial situation perception is important to QoL and also seems to be a filter for the contribution self-determination components and resilient factors have on this QoL. This implies that, when working with youth and adults, educators should take in account the contexts where they live in order to minimize the effects of socioeconomic status on post school outcomes. In fact, many of the poor results in adult life of youth with disabilities have been attributed to life of poverty and education inequalities that limit opportunity for others (Hughes, 2013). Analyzing the effect of socioeconomic status on postsecondary outcomes Wagner et al. (2008) found that a high school diploma is the only mediator that significantly affects both postsecondary education and employment outcomes. The authors suggest that Individualized Education Programs (IEPs) and transition plans specify the instructional programs, supports, and services that are needed to help students with disabilities obtain high school diploma.

Support emerged associated to self-determination components such as, problem-solving and goal setting skills. According King, Willoughby, Specht and Brown (2006) people with disabilities perceive interactions with others to be supportive when these interactions provide them with a sense of self-worth,

a sense of control or mastery over life events, and an understanding of their strengths, abilities, and life situation. To have these experiences, people with disabilities require opportunities to interact with others. In this sense, developing deeper relationships can be both, a goal in itself and a means to achieving other goals (Schuh et al., 2014). Interventions in this area will benefit if they take place in a relational context, i.e., the development of these skills should as much as possible occur in real contexts of interaction and interpersonal relationships. Literature has been identifying evidence-based best practices in secondary transition that teachers can use such as, teaching job-related social communication, social skills and life skills using a community-based instruction (Test et al., 2009). For example, the school can provide work experiences in real contexts that focus their attention on socializing with coworkers (Cobb & Alwell, 2009). Teachers can also use existing programs like the “Working at Gaining Employment Skills” (WAGES; Johnson, Bullis, Benz, & Hollenbeck, 2004). This program contains specific units directed to work skills related to the workplace: locus control, teamwork, and communication skills.

In sum in TRfQoL Model, self-determination components are associated to resilience associated factors, and all contribute in a direct or indirect way to a better QoL. QoL is considered the ultimate goal of a transition process and in this model is directly associated with self-efficacy and financial situation. Thus, alongside to the work of development of skills of self-determination, the TRfQoL model reinforces the need to promote self-efficacy and provide social support to youth with disabilities on transition process.

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