Collaborative Autonomy and Need Satisfaction Foster Adaptation of University Students with Disabilities

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Abstract

Postsecondary students with disabilities risk facing challenges while pursuing their academic goals. Although disability service providers are encouraged to support their goal pursuit, its actualization and the role of individual differences remain poorly researched. We examine the role of autonomy striving dispositional styles, need satisfaction, and goal action crisis. A three-wave, semester-long study was conducted with 234 university students with disabilities. Through path analysis, a type of structural equation modeling, four hypotheses were tested. Assisted autonomy was associated with higher need satisfaction and less severe goal action crises in the middle of the semester. Indirect effects were also evidenced on goal progress and positive affect at the end of the semester. Striving to satisfy their autonomy need through collaborative means supports well-being and academic goal progress for university students with disabilities. Disability service providers and university settings are thus encouraged to create need-supportive environments and foster collaboration across campuses.

Keywords: autonomy, self-determination theory, goals, postsecondary education, disability

Ensuring and enhancing the accessibility of postsecondary education for youth with disabilities is a priority in many legislations (e.g., Government of Quebec, 2021; U.S. Department of Education & Office of Special Education and Rehabilitative Services, 2020), and is part of the United Nations Convention on the Rights of Persons with Disabilities (United Nations, 2006). In connection with these legislative commitments, a rapid increase in the number of university students with disabilities has been evidenced in the past years. In Quebec (Canada), a 50% increase has been observed from 2016-2017 to 2020-2021, and as much as 5.6% of all university students now report having a disability, compared to only 3.7% five years ago (AQICESH, 2022). Considering this changing landscape, there is a growing need to better support these students in navigating this educational context which can bring many challenges (Government of Quebec, 2021). For instance, one study found that many students with learning disabilities reported having difficulties completing their assignments and managing obstacles related to their academic skills (McGregor et al., 2016). Environmental obstacles are also present, such as bias, a lack of knowledge about diverse disabilities, a lack of accommodations, and physical and institutional barriers to accessibility (García-González et al., 2021; McGregor et al., 2016). Moreover, the unprecedented changes brought by the COVID-19 pandemic in higher education settings have exacerbated some barriers experienced by students with disabilities (Field & Parker, 2021), and young adults report rising levels of anxiety and depression since the beginning of the pandemic (Czeiler et al., 2020).

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In such challenging environments, persistence through postsecondary education can be a challenge for students with disabilities (Mamiseishvili & Koch, 2011). An effective way of supporting these students' persistence is through supporting their sense of purpose in their studies, which refers to the general ability to pursue goals through goal setting and planning, and maintaining this engagement despite obstacles (Belch, 2004). Personal goals are a central part of daily life, helping to organize and structure our behaviors (Holding & Koestner, 2022). They also often involve people around us, who offer support that can enhance goal progress. Thus, to help understand how to offer optimal support to students with disabilities, this study focuses on their academic goal pursuits and how motivational factors can influence their progress toward goal achievement.

Goal Pursuit and Self-Determination Theory

Personal goals are considered vitalizing sources of energy supporting optimal development (Emmons, 2003; Heckhausen et al., 2010, 2019). They can relate to various life domains, such as education, health, career, leisure, or relationships (Holding & Koestner, 2022). Goals occupy such an important place in our lives because making progress toward goal achievement is associated with increased well-being, while decreased well-being can be observed when progress is lacking (Diener et al., 1999).

The Lifecycle of a Personal Goal

Holding and Koestner (2022) recently proposed a theoretical model of the lifecycle of a personal goal, including situational, personality, and motivational factors that can have an impact at different stages of goal striving. According to this model, once a goal is selected, people engage in goal pursuit that might lead to goal attainment through perseverance. However, people often meet obstacles and setbacks during goal pursuit, which may lead to action crises. During an action crisis, people are conflicted about their goals; they are torn between disengaging from the goal or persisting with a renewed commitment and mustering more effort (Brandstätter et al., 2013). In three studies, Brandstätter et al. (2013) demonstrated that experiencing an action crisis was linked to reduced psychological well-being (i.e., life satisfaction and positive affect), heightened physiological stress, and lower performance. Holding et al. (2021) also confirmed that more severe action crises of university students over an academic year were associated with higher levels of physiological and subjective stress, symptoms of poor health, and depression symptoms. Thus, it appears that action crises in goal pursuit can seriously hamper effective goal progress (Brandstätter et al., 2013; Holding et al., 2017).

Self-Determination Theory

These previous results underline the close relations between goal pursuit, goal action crisis, goal progress and well-being in people's everyday life. An important motivational theory that can help understand how to effectively pursue a goal is self-determination theory (SDT; Ryan & Deci, 2017). According to SDT, human beings are naturally oriented toward their optimal development and strive to connect with others, develop mastery, and explore their environment. Such behaviors are present because of the universal need to satisfy three basic psychological needs considered essential nutrients for well-being and flourishing: autonomy, competence, and relatedness (Vansteenkiste et al., 2020). The need for autonomy refers to experiencing volition in a behavior, including its initiation, maintenance, and regulation; the need for competence refers to experiencing mastery and feeling effective during a task; and the need for relatedness refers to experiencing close and significant relationships with others.

In the midst of the COVID-19 pandemic, satisfying these needs became increasingly challenging as choices, opportunities, and relations were constrained (Field & Violi, 2021). It is nevertheless a crucial component of healthy functioning. Indeed, the satisfaction of these needs has been linked to various well-being outcomes in populations without disabilities, such as affect and positive self-concept (Milyavskaya et al., 2009), positive emotion (Holzer et al., 2021), subjective well-being (Milyavskaya & Koestner, 2011), life satisfaction and vitality (Chen et al., 2015), and happiness (Froiland et al., 2018). A positive association between need satisfaction and quality of life and satisfaction with health has also been evidenced among college students with disabilities (O'Shea et al., 2021) and adults with intellectual disability (Frielink et al., 2018). In addition to this extensive support to the close relations between need satisfaction and well-being outcomes, there could also be a link to explore in terms of goal progress. Indeed, we can expect that the positive energy that accompanies the satisfaction of these needs in need-supportive environments can foster a more effective goal pursuit (Werner & Milyavskaya, 2018).

Autonomy Striving as an Individual Difference

As evidenced in the lifecycle model, apart from these motivational and situational factors, individual differences such as personality traits can also have an impact on goal progress and achievement (Holding

& Koestner, 2022). A promising dispositional characteristic in terms of understanding goal progress is the distinction between how people strive to satisfy their need for autonomy, namely through assisted or asserted means (Legault et al., 2017).

Assisted and Asserted Autonomy

Both approaches to autonomy need satisfaction are considered traits with different relations to goal pursuit and well-being. People who rely on assisted autonomy satisfy their need through supportive environments that nurture the self-endorsement of their behaviors, goals, and values. Indeed, when people have developed in need-supportive contexts, they rely on autonomy support from their social network and feel comfortable expressing their interests and true self. By contrast, with asserted autonomy, the autonomy need is satisfied through more independent and proactive ways, sometimes because of less supportive environments. People seek autonomy in a more individualistic way by affirming their true self and fighting to overcome what prevents them from doing so. Both autonomy styles can coexist within a person and the relative balance may vary across contexts (Legault et al., 2017). Finally, both are associated with well-being, but through different pathways; while assisted autonomy is related to well-being through interpersonal connectedness, asserted autonomy is related to it through curiosity and exploration.

When considering these distinct approaches in the context of goal pursuit, there could be advantages to the assisted autonomy style. Indeed, even if goal pursuit has traditionally been considered an individual endeavor in past empirical research, more recent work has increasingly considered it as a collaborative phenomenon, grounded in interpersonal relationships (Fitzsimons & Finkel, 2018; Holding & Koestner, 2022; Levine et al., 2020). Goals do not only concern the goal pursuers, but generally involve the people around them such as parents, teachers, friends, or romantic partners (Koestner et al., 2020). Thus, one could hypothesize that people who pursue their autonomy through interdependence and connection with others would experience greater goal progress. This was evidenced in a recent study with university students by Levine et al. (2021). Over an academic year, students who had a more collaborative personality (i.e., higher agreeableness, assisted autonomy striving, and secure attachment) reported being more autonomously motivated toward their goals, and pursuing their goals because they wanted to do so resulted in better goal progress at the end of the year. Looking to satisfy the autonomy need through more relational processes thus seems helpful in terms of goal pursuit.

Assisted Autonomy in the Context of Goal Pursuit

Based on these findings, assisted autonomy could be related to two concepts discussed above, namely need satisfaction and goal action crisis. Previous research has identified need satisfaction as an important mediator between supportive contexts and positive outcomes. For example, teachers working with principals who supported their autonomy experienced greater positive affect through greater psychological need satisfaction (Ebersold et al., 2018). Need satisfaction also mediated the association between perceived autonomy support and the academic motivation and engagement of primary students (Zhou et al., 2019), perceived autonomy support from friends and the academic goal progress of university students (Chua et al., 2021), as well as positive teacher-students' relationships and secondary students' happiness (Froiland et al., 2019). It thus appears that collaborative environments in which people feel supported, such as is expected when striving for autonomy in an assisted way, nurture need satisfaction, which can subsequently enhance well-being, motivation and engagement, and goal progress.

This study is the first to explore how assisted versus asserted autonomy relates to conflicts in goal striving. Nevertheless, previous research from Holding et al. (2017, 2021) evidenced the mediating role of action crisis between motivation and the outcomes of well-being and goal progress. More precisely, setting autonomously motivated goals protected university students from experiencing severe goal action crises, thus enabling greater goal progress. In contrast, setting controlled goals (i.e., pursuing goals out of a sense of pressure or obligation) was linked to decreased well-being and greater depressive symptoms through more severe action crises. Although motivational antecedents were not explored in these studies, SDT research has established that autonomous motivation is fostered via supportive environments that nurture psychological need satisfaction (Ryan & Deci, 2017). It can thus be hypothesized that striving to satisfy autonomy through collaborative approaches may lead to less severe goal action crises because people can rely on others to nurture goal progress and well-being. By contrast, it is possible that focusing on individualistic action during goal striving may make goal setters more vulnerable to action crises because of a lack of this collaborative support system.

The Goal Pursuit of Postsecondary Students with Disabilities

Supporting effective goal pursuit through disability service providers in postsecondary institutions is considered best practice for students with disabilities

(National Educational Association of Disabled Students, 2012). When receiving services aimed toward academic goals achievement (e.g., GOALS² program; see Boney et al., 2019 and Harrington et al., 2021), students underline how helpful they can be in terms of academic success, learning, and skills. As discussed earlier regarding the importance of SDT in studying goal pursuit, students report being able to set goals more easily, making better progress toward their goals, feeling emotionally supported by people who cared about them and comfortable sharing their thoughts and worries, and experiencing enhanced well-being.

Therefore, it appears that in addition to improving their organizational skills and using accommodations to reach their academic goals through disability service providers, students value the support offered in this context. For instance, research suggests that postsecondary students with psychiatric disabilities (e.g., depression, anxiety, schizophrenia) report that having caring relationships with service providers and having peers that allow them to share their postsecondary experience contribute to their educational goal progress (Biebel et al., 2017). Postsecondary students with reading difficulties also report benefiting from emotional support through academic centers and other services in their university (Stack-Cutler et al., 2015).

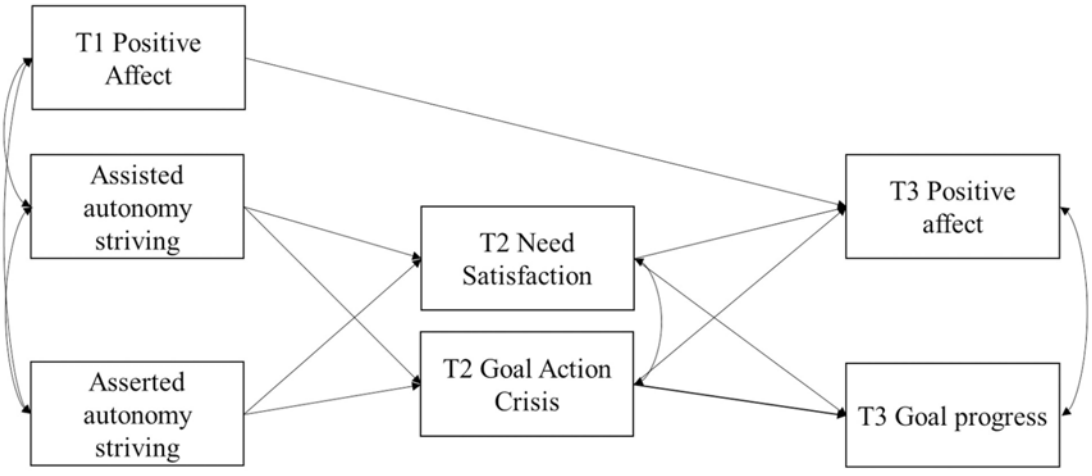
While previous studies have identified several active ingredients of effective support toward goal achievement, very little is known about how goal pursuit is truly enacted for students with disabilities, which individual differences can have an impact, and how that relates to well-being. Considering the importance of goal pursuit for postsecondary students and the relevance of SDT-related concepts of autonomy and need satisfaction for this population in terms of well-being and goal pursuit, it is crucial that we better understand how these variables interact in students with disabilities to help create better resources and optimize their goal progress.

The Present Study

Over the course of a 13-week winter semester, we conducted a three-wave prospective study with university students with disabilities, focusing on their academic goal pursuits. The main aim was to study the role of autonomy styles (T1) with need satisfaction and goal action crisis in the middle of the semester (T2), and goal progress and positive affect at the end of the semester (T3). To study these relations simultaneously, we developed a theoretical model outlining the expected associations between each variable, in which straight arrows represent a direct effect from one variable to another, and curved arrows represent an association between two variables (Bollen, 1989; see Figure 1). As the model is theoretically driven, the hypotheses are based on the SDT relations presented in the introduction. Thus, the model focuses on assisted autonomy, which we believe is especially helpful for students with disabilities, and its relationship with goal progress and positive affect, through need satisfaction and goal action crisis.

Figure 1

Hypothesized Path Model



We had 4 hypotheses:

1. Assisted autonomy striving would be related to more need satisfaction and less goal action crisis at T2
2. Need satisfaction at T2 would be related to more positive affect and goal progress at T3
3. Goal action crisis at T2 would be related to less positive affect and goal progress at T3
4. Assisted autonomy would have indirect positive effects on both positive affect and goal progress through need satisfaction and goal action crisis.

Method

Participants and procedure

Two-hundred-thirty-four university students (M_{age} = 22.3, *SD* = 4.85) were recruited in a large public Canadian university for a semester-long study during the 2022 Winter. Of the participants, 75.6% were women, 15.4% were men, 3.4% identified as 'Other' and 4.3% preferred self-definition (1.3% missing response). In addition, 71.4% of our sample identified themselves as having a White/European Canadian ethnic/cultural background, 17.9% identified as Asian/Asian Canadian/Pacific Islander, and 7.7% identified as Middle Eastern/Arab Canadian. Other ethnic/cultural background included Latino/Hispanic Canadian (5.1%), Native/First Nations (2.6%), as well as Black/African Caucasian (2.1%). The recruitment process specifically targeted students with disabilities through the university's disability service provider, which advertised the study through email distribution and online blurbs. Participants were all registered with this office, and they self-reported various disabilities: anxiety (*n* = 144), depression (*n* = 100), attention deficit/hyperactivity disorder (*n* = 90), mental health – other (*n* = 57), medical condition (*n* = 39), learning disability (*n* = 35), mobility/orthopedic disability (*n* = 22), traumatic or acquired brain injury (*n* = 20), autism spectrum disorder (*n* = 16), visual impairment (*n* = 11), hearing impairment (*n* = 2), language impairment (*n* = 2), intellectual disability (*n* = 1), and speech impairment (*n* = 1). Comorbidities were frequent; students reported between one and eight disabilities, with a mean of 2.4. Twenty-two reported other disabilities, and five preferred not to respond.

Three questionnaires were sent to the participants: one in January at the beginning of the semester (T1), one in March in the middle of the semester (T2), and one in May at the end of the semester (T3). The surveys were distributed online through the survey software Qualtrics. The T1 survey assessed personal academic goals and dispositional autonomy striving. The two follow-up surveys, in which participants were reminded of the goals they had set, measured well-being, goal progress and goal support. At T2, 195 participants completed the survey and at T3, 181 answered the final questionnaire. The retention rates were high (83.3% at T2 and 77.4% at T3). The surveys were available for three weeks after the participants received the link, and two weekly reminders were sent to participants who had not yet answered or completed the questionnaire. A financial compensation of $20 was offered to the participants for their time. This study was approved by the University Research and Ethics Board.

Measures

Academic Goal Description

At T1, participants were asked to indicate two academic goals they intended to pursue during the semester. Participants entered various goals, such as "I want to attain a 3.6 GPA average this semester," "Develop a post-graduation plan," "Hand no assignment in late," "I want to edit my papers before submitting them," or "Pass biology with a B+ or better."

Dispositional Autonomy Striving

At T1, participants completed a scale assessing their dispositional style when they strive to satisfy their need for autonomy (Legault et al., 2017). Participants rated six items on a 7-point Likert scale (1 = *Strongly disagree*; 7 = *Strongly agree*). Of the six items, three assessed asserted autonomy (e.g., *I fight for opportunities to be who I really am*) and three assessed assisted autonomy (e.g., *I feel like my family and friends allow me the chance to express myself and my feelings*). A mean score was computed for asserted (α = .79) and assisted autonomy (α = .79)

Positive Affect

We measured positive affect at T1 and at T3 using Emmons scale (1992). Participants reported how they felt over the past two weeks for each of the four following items: *Joyful, Happy, Pleased,* and *Enjoyment/Fun.* They answered on a 7-point Likert-scale ranging from 1 (*Not at all*) to 7 (*Extremely*). The internal reliability was α = .89 at T1 and α = .91 at T3.

Need Satisfaction

We assessed need satisfaction at T2, using a three-item shortened version of a commonly used and validated scale, the Balanced Measure of Psychological Needs scale (Sheldon & Hilpert, 2012). This scale is originally composed of three subscales of three items assessing need satisfaction (autonomy subscale α =

.69; competence subscale α = .71; relatedness subscale α = .71), and three subscales of three items assessing need dissatisfaction. Of the nine initial items measuring need satisfaction, we kept one item assessing the satisfaction of each need to keep the survey as short as possible (α = .50): autonomy (i.e., *I was free to do things my own way*), competence (i.e., *I was successfully completing difficult tasks and projects*), and relatedness (i.e., *I felt a sense of contact with people who care for me, and whom I care for*). Each item was rated on a 7-point Likert-scale (1 = *Not true at all*; 7 = *Very true*).

Goal Action Crisis

For each academic goal, we measured goal action crisis at T2, namely how much conflict arose as participants strove for their academic goal, using two items (i.e., *Lately I feel torn between continuing to strive for this goal and abandoning it; I have thought about giving up this goal*), rated on the same 7-point Likert scale. These items were selected from a validated English version of the six-item Action Crisis Scale (Brandstätter et al., 2013; Holding et al., 2017). The mean score of all items across the two goals was computed, using a total of four items (α = .76).

Goal Progress

Goal progress was assessed at T3 for each academic goal separately, using three items (Koestner et al., 2012): *I have made a lot of progress toward this goal, I feel like I am on track with my goal plan*, and *I feel close to achieving this goal*. Participants answered on a 7-point Likert scale (1 = *Strongly disagree*; 7 = *Strongly agree*). We computed a mean score of all items across the two goals, using a total of six items (α = .88).

Analytic Plan

We used SPSS statistics software (Version 27) for descriptive statistics, namely the means, standard deviations, and correlations, using a two-tailed significance level (p = .05). We then used path analysis in Mplus (version 8.2; Muthén & Muthén, 1998-2017), with the maximum likelihood (ML) estimator. In addition to direct effects from one variable to another, indirect effects were also estimated to evidence the mediating role of T2 variables, namely need satisfaction and goal action crisis (Bollen, 1989). Path analysis is a robust and commonly used technique in studies using structural equation modeling (Kline, 2015; Mai et al., 2019). It is indeed a relevant approach when testing direct and indirect associations that are theoretically and empirically supported, as previously used in research focused on goal and motivation (e.g., Phan, 2009). Although this approach cannot prove causation between variables in the model, it enables us to validate if our hypotheses are consistent with the data collected in the research project in one single analysis (Bollen, 1989).

To test the validity of the model, we first report the Chi-square value, with its degrees of freedom and p value, based on Kline's (2015) recommendation. Second, goodness-of-fit is evaluated against four values, namely (a) Root Mean Squared Error of Approximation (RMSEA; Steiger, 1990), (b) Comparative Fix Index (CFI; Bentler, 1990), and (c) SRMR (Bentler, 1995). An excellent model-data fit (Hu & Bentler, 1999) is indicated by a RMSEA lower than .06, a CFI greater than .95, and a SRMR between 0 and .08.

Results

Preliminary Analyses

Table 1 presents the means, standard deviations, and correlations between all variables included in the path analysis. Looking at the correlations between autonomy and T2 and T3 variables, positive significant correlations were observed between assisted autonomy and T2 need satisfaction, as well as T3 outcomes. Assisted autonomy was also negatively correlated with T2 goal action crisis. Contrastingly, asserted autonomy was only significantly correlated with T2 need satisfaction. As for relations between T2 and T3 variables, significant correlations were present between each T2 and T3 variables. While T2 need satisfaction was positively correlated with both outcomes, negative correlations were observed for T2 goal action crisis.

Path Analyses

The complete measurement model had seven observed variables, including two outcome variables (i.e., T3 goal progress and T3 positive affect) and 1 control variable (i.e., T1 positive affect)[1]. The model fit was good (χ^2 = 11.208, df = 7, p = .130; RMSEA = .051, p = .430, CFI = .977, SRMR = .036; see Figure 2). The model explained a small to moderate part of each outcome, namely 30% of T3 goal progress (p < .001) and 21% of T3 positive affect (p < .001). When first examining the significant direct effects evidenced between T1 and T2 variables, assisted autonomy positively predicted T2 need satisfaction, while a negative association was found with T2 goal

1 A full SEM model with latent variables was also computed, but had a poorer fit than the path analysis model. The same latent model was also run with age and gender as control variables, and the results were similar. The syntax and output of these models are available on OSF: https://osf.io/9ravp/?view_only=a6d1dcab46a3451aa598c77ba19f1b30

Table 1

Means, Standard Deviations, and Correlations Between All Variables in the Structural Equation Model

Variables	*M*	*SD*	1	2	3	4	5	6
T1 variables								
1. Assisted autonomy	5.08	1.26	-					
2. Asserted autonomy	4.65	1.34	.320**	-				
3. Positive affect	4.30	1.14	.367**	.238**	-			
T2 variables								
4. Need satisfaction	4.44	1.07	.441**	.144*	.351**	-		
5. Goal action crisis	3.26	1.53	-.157*	.128	-.073	-.363**	-	
T3 outcomes								
6. Goal progress	4.40	1.61	.164*	-.047	.055	.264**	-.539**	-
7. Positive affect	4.37	1.24	.228**	.077	.410**	.356**	-.205**	.264**

Note. Correlations between T1 variables (1 to 9) are based on the sample of 234 participants at T1. Correlations with T2 variables (4 & 5) are based on the sample of 191 participants at T2. Correlations with T3 variables (6 & 7) are based on the sample of 181 participants at T3. * $p < .05$ (2-tailed). ** $p < .01$ (2-tailed)

Figure 2

Standardized Path Coefficients for the Hypothesized Model Predicting T3 Goal Progress and Positive Affect (N = 234)

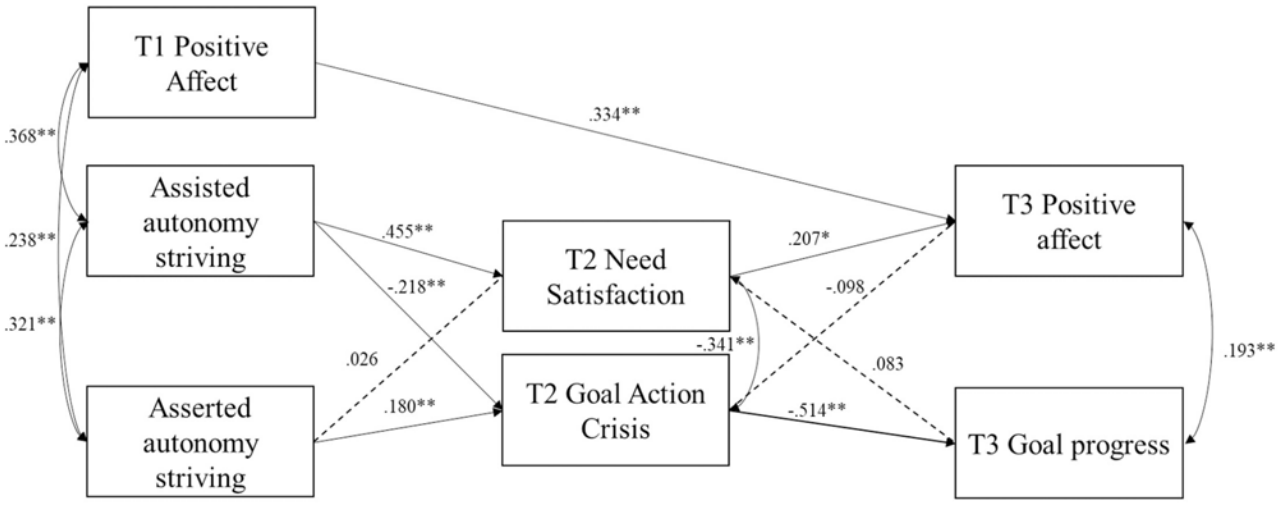


Table 2

Path Analysis Detailed Results

Regression paths	Standardized coefficient	Standard error	*p*	Confidence interval (95%)
T2 Need satisfaction ON				
Assisted autonomy	.455	.062	.000	[.333-.578]
Asserted autonomy	.026	.065	.690	[-.101-.153]
T2 Goal action crisis ON				
Assisted autonomy	-.218	.074	.003	[-.363- -.073]
Asserted autonomy	.180	.069	.009	[.045-.315]
T3 Goal progress ON				
T2 Need satisfaction	.083	.071	.243	[-.056-.222]
T2 Goal action crisis	-.514	.061	.000	[-.634- -.394]
T3 Positive affect ON				
T1 Positive affect	.334	.066	.000	[.205-.463]
T2 Need satisfaction	.207	.081	.011	[.048-.367]
T2 Goal action crisis	-.098	.076	.196	[-.247-.051]

action crisis (see Table 2). In other words, seeking autonomy through assisted means was associated with greater need satisfaction and less goal action crisis in the middle of the semester. A significant positive association was also found from asserted autonomy to T2 goal action crisis, meaning that seeking autonomy through asserted means was associated to greater goal action crisis in the middle of the semester. Second, T2 need satisfaction positively predicted positive affect at T3, and goal action crisis was negatively associated with T3 goal progress. As such, students experiencing greater need satisfaction in the middle of the semester reported higher positive affect at the end of the semester, while students experiencing more action crisis experienced less goal progress at the end of the semester. Finally, positive affect at the end (T3) and beginning (T1) of the semester were significantly associated.

Indirect effects were also computed for assisted and asserted autonomy to the outcome variables. Assisted autonomy was associated with T3 goal progress through T2 goal action crisis ($\beta = .112$, $p = .006$). Students higher in assisted autonomy striving were more likely to make progress on their academic goals because they faced less conflict while striving for their goals. An indirect effect was also present from assisted autonomy to T3 positive affect through T2 need satisfaction ($\beta = .094$, $p = .017$). Assisted autonomy striving was associated with greater positive affect because these students reported more need satisfaction. As for asserted autonomy, a significant indirect effect was observed through T2 goal action crisis on T3 goal progress ($\beta = -.093$, $p = .014$). Students higher in asserted autonomy striving were less likely to make progress on their goals because they experienced more action crises during goal pursuit. No indirect effect was present for asserted autonomy on positive affect.

Discussion

This study with university students with disabilities aimed to examine the relations between how students strive to satisfy their autonomy need, their mid-semester need satisfaction and goal action crisis, as well as end-of-semester outcomes of positive affect and goal progress. Our findings provided good support for our hypotheses regarding how these students pursue their academic goals over the course of a semester. Importantly, seeking to achieve academic goals through collaborative means seemed particularly helpful. The main results will be discussed, and the implications for disability service providers in post-secondary settings will be presented.

The Central Role of Assisted Autonomy

Our results support the first hypothesis, namely that students who reported a higher tendency to satisfy their need for autonomy through collaboration in need-supportive environments felt more autonomous, competent, and related in the middle of the semester, and they felt less conflicted about the academic goals they selected. These results are in line with previous findings highlighting the association between assisted autonomy and need satisfaction in adults from the general population (Legault et al., 2017), as well as the contribution of assisted autonomy to the goal pursuit of university students (Levine et al., 2021).

Regarding assertive autonomy, its association with more severe goal action crisis in the middle of the semester could be explained by how successfully reaching a goal is grounded in collaboration with others and rich relationships (Fitzsimons & Finkel, 2018; Holding & Koestner, 2022; Levine et al., 2020). Moreover, assertive autonomy does not appear to be helpful in terms of need satisfaction during the semester when assisted autonomy is concurrently considered. The stronger association with assisted autonomy better explained how students came to feel satisfied in terms of autonomy, competence, and relatedness. Considering how the recent pandemic has made need satisfaction even more challenging, this finding is highly relevant in terms of supporting the need satisfaction of students with disabilities (Field & Violi, 2021).

SDT's conceptualization of autonomy helps interpret why pursuing autonomy satisfaction through collaborative means relates to higher need satisfaction and less action crises during goal pursuit. Indeed, contrary to previous definitions that considered autonomy as "entirely independent" actions completely free from external influences (Bandura, 1989, p. 1175), SDT distinguishes autonomy from individualism and independence. Given that autonomy refers to "the experience of volition and willingness" (Chen et al., 2015, p. 218), it is plausible that autonomy is enacted through reliance on others, as long as people's behaviors are self-endorsed and align with their true self. People can choose to benefit from others' help (Ryan et al., 2005).

Thus, it appears that how SDT conceptualizes autonomy is relevant for students with disabilities, for whom collaboration and support appear essential in postsecondary education. For example, students with disabilities who report using university supports, among which many involve other people (e.g., supportive lessons in small groups, tutors, counselling), participated more actively in student life and perceived their institution as more facilitating (Schreuer & Sachs, 2014). In addition, using collaborative practices such as support groups, academic coaching, or tutoring relates to better academic performance and higher persistence (DuPaul et al., 2017; Getzel, 2008), and students who access and receive academic supports persist more in their programs and toward graduation than students who do not (Newman et al., 2019; Pingry O'Neil et al., 2012). Finally, social support systems including family, friends, and romantic relationships, are perceived by students with disabilities as essential components of their success (Field et al., 2003). Relying on others while remaining volitional and fully endorsing one's actions and beliefs thus seems to benefit the academic goal pursuit for students with disabilities.

Positive Affect Explained by Need Satisfaction and Assisted Autonomy

Positive affect at the end of the semester can be explained both by need satisfaction (hypothesis 2) and, indirectly, by assisted autonomy (hypothesis 4). More precisely, students who reported higher need satisfaction in the middle of the semester reported increased positive affect over the course of the semester. SDT (Ryan & Deci, 2017) and previous research have put forward this close relationship between need satisfaction and positive affect (university students in Holzer et al., 2021; adolescents in Milyavskaya et al., 2009). Feeling that one's basic psychological needs are satisfied is indeed a fulfilling experience. Need satisfaction also acted as a mediator between assisted autonomy and positive affect, similarly to its role between autonomy support and positive affect (Chua et al., 2021; Ebersold et al., 2018; Froiland et al., 2019; Zhou et al., 2019). This finding suggests that students who were more collaboratively autonomous experienced higher positive affect because their needs were satisfied during the semester. Relying on social support that enhances need satisfaction can be an effective coping strategy for students with disabilities and help them feel more positive emotions afterwards (Vaccaro et al., 2019).

One hypothesis regarding positive affect was not supported by the results. Although we expected goal action crisis in the middle of the semester to be negatively associated with this outcome (hypothesis 3), this effect did not reach significance in the model. It appears that, because goal action crisis was more strongly related to goal progress at the end of the semester, this association was put forward in the model at the expense of the association with positive affect. Thus, if students with disabilities experience action crises during a semester, we could expect those to impact goal progress more significantly than positive affect over the semester.

Goal Progress Explained by Goal Action Crisis and Trait-Based Autonomy Striving

In terms of goal progress, goal action crises in the middle of the semester was significantly related to worse goal progress at the end of the semester (hypothesis 3), a finding supported by previous research with university students (Brandstätter et al., 2013; Holding et al., 2017). Goal action crises also mediated both the positive association between assisted autonomy and goal progress (hypothesis 4), and the negative association between asserted autonomy and goal progress. In other words, students who tended to rely on support and collaboration to satisfy their autonomy reported greater goal progress at the end of the semester because they experienced less severe crises. By contrast, students who used more individualistic approaches to autonomy satisfaction experienced less academic goal progress, in part due to more severe action crises during the semester.

As discussed above, collaborative practices are an essential ingredient of success for students with disabilities (DuPaul et al., 2017; Field et al., 2003; Getzel, 2008; Newman et al., 2019; Pingry O'Neil et al., 2012; Schreuer & Sachs, 2014). Being open to collaboration and reliance on support thus seems to function as a protective factor for students with disabilities. One could nevertheless wonder how assertive autonomy negatively affects goal progress when it is recommended that students with disabilities develop self-advocacy skills to enhance their self-determination (Wehmeyer & Shogren, 2017). It appears that advocating for oneself does not have to be seen as an individualistic action, but as an agentic action that is self-initiated and goal directed, involving communication and collaboration with others such as disability service providers (Pfeifer et al., 2020; Test et al., 2005; Wehmeyer & Shogren, 2017). Once again, the distinction between autonomy and independence or individualism is essential.

Finally, contrary to what was expected, higher need satisfaction in the middle of the semester was not associated with greater goal progress at the end of the semester (hypothesis 2). As for positive affect, a closer relationship appears to exist between action crisis and goal progress, than between need satisfaction and goal progress. It is also important to remember that all goals were academic, and as such, need satisfaction could have played a more prominent role with other kinds of goals, such as personal goals related to social life or leisure.

Limitations and Future Directions

This study has some limitations that must be discussed. First, regarding the sample, most of our sample was Caucasian women. Although SDT is considered a universal theory valid cross culturally (Ryan & Deci, 2017), future studies could seek more diverse samples to enhance the generalizability of the results. Also, although previous research on assisted autonomy has not produced consistent findings regarding the role of age, gender, and ethnicity on this dispositional trait, further exploring these variables could help better understand the importance of considering this diversity in practice. In addition, future studies could seek to recruit a sample ensuring representation across disabilities. In our sample, many participants reported mental health disabilities and the small number of participants reporting certain disabilities (e.g., intellectual disability, autism spectrum disorder) prevented us from conducting subgroup analyses.

Second, in terms of measures and analyses, the need satisfaction measure had a lower reliability than the other scales used in the model. So far, few studies have designed questionnaires that are accessible for students with disabilities while using SDT scales, and low reliability coefficients when measuring need satisfaction have been reported with adolescents with disabilities (Shogren et al., 2019). To prevent this, future studies should aim to maintain the original validated scales when possible. Also, there was no control group to evaluate if the findings were specific to students with disabilities or generalized across the student population. Considering that previous studies evidenced similar associations with university students (e.g., Legault et al., 2017; Levine et al., 2021), future studies could aim to recruit a parallel sample to compute such analyses and deepen the understanding of the findings. As for the analyses, even though we used the robust technique of path models, they may have more measurement error compared to structural equation models with latent variables. With a larger sample, future studies could use latent variables to further validate the findings of this study.

Finally, this study only focused on academic goals. It would be important to expand to other types of goals to gain a better knowledge of the goal pursuit of students with disabilities.

Implications

This study first highlights the relevance of SDT as an informative framework for postsecondary disability service providers. Studies applying SDT with populations with disabilities are still scarce compared to other fields and have not always evidenced all the expected associations. For example, Shogren et al. (2019) found that only relatedness predicted self-determination in adolescents with disabilities, and not autonomy and competence. In our study, in-

terestingly, all the significant associations had previously been observed with university students and adults in the general population. Disability service providers supporting the goal pursuit of students with disabilities can thus be more confident in applying SDT to their context.

More concretely, this study underlines the essential role of assisted autonomy striving in terms of academic goal progress and well-being over the course of a semester. Once again, to support students with disabilities' success, collaboration is a key element. As stated by Martel et al. (2018), transitioning to postsecondary education does not equal independent functioning from one day to another. As such, disability service providers are encouraged to remain sensitive to the type of autonomy striving students display, whether is it through assisted or assertive means. As evidenced in this study, advocating for oneself and pursuing goals does not have to be an individualistic quest. Although there are no studies yet on the possibility of influencing these dispositional traits, Legault et al. (2017) suggest that they can vary from one context to another within the same person, or across domains. Therefore, if needed, disability service providers could accompany students toward more assisted dispositions during academic goal pursuit. Encouraging openness to others' support could be a meaningful approach.

In relation to supporting a more assisted autonomy style, it is essential to foster need-supportive environments around students with disabilities (Wehmeyer & Shogren, 2020), and especially create autonomy-supportive contexts (Reeve et al., 2022). Indeed, assisted autonomy striving arises from autonomy support. Opposingly, environments in which autonomy is not encouraged might lead people to develop a more assertive style to nevertheless satisfy this need. Being autonomy-supportive can be enacted in a variety of contexts such as classrooms, student services, or relationships. In each of these contexts, every actor involved with students with disabilities is encouraged to implement the essential ingredients of autonomy support. More precisely, being autonomy-supportive refers to consider the students' perspective with an understanding tone, offer them the possibility of making meaningful choices and have responsibilities, give them a rationale regarding less pleasant tasks, and use non-controlling language that is more invitational (Deci & Ryan, 2016; Reeve et al., 2022). It is also important to acknowledge students' negative feelings when they do experience such emotions. Thus, disability service providers who accompany students with disabilities in their academic goal pursuit are first encouraged to consider their perspective by understanding their context, how they approach their semester and what are their goals. Then, throughout the session, students gain from evolving in a welcoming space where they don't feel pressured toward specific behaviors, including by directive language (e.g., *must, have to*). Disability service providers can also give them opportunities to make their own decisions, and provide the necessary space to express their feelings when they face challenges or worry about the outcomes of their efforts. Presenting strategies to correct potential mistakes during choice-making is also essential (Field, 2016), as well as outlining the relevance of unpleasant tasks or assignments from the students' perspective to help them understand how it will support their goal pursuit.

Finally, autonomy support can also be enacted in broader contexts, meaning that any new program as well as student services across campus would gain from offering a need-satisfying experience to every student. Indeed, an important proportion of college students with disabilities, and especially those with hidden disabilities, do not register with on-campus disability services (Newman & Madaus, 2015). Thus, fostering need-supportive environments and a culture of collaboration across campus is crucial to supporting positive affect and goal progress for all students with disabilities, regardless of whether they chose to disclose their disability or not. Such shifts would also benefit the university population as a whole. Considering the long-lasting impacts of the COVID-19 pandemic on the learning environments of university students, fostering need satisfaction appears more important than ever (Field & Violi, 2021).

Conclusion

This study supports the importance of collaborative autonomy regarding the academic goal pursuit and positive affect of university students with disabilities. Indeed, pursuing autonomy satisfaction through assisted autonomy is associated with better outcomes while adopting a more assertive style is associated with less successful goal progress. Universities and disability service providers are thus encouraged to foster need-supportive environments for students with disabilities, with a specific focus on supporting the need for autonomy, thus promoting more collaborative dispositions for these students.

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