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Association Between Self-Regulation of Learning, Forced Labor Insertion, Technological Barriers, and Dropout Intention in Chile

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Early dropout and retention of students are critical problems in both secondary and higher education. Existing models that predict the intention to drop out require the incorporation of complex variables strongly related to student success, such as self-regulated learning. Moreover, new possible predictors have emerged in the context of a pandemic. This study set out to validate scales that measure the phases of self-regulation of learning in Chilean secondary school students and determine the association between self-regulation, forced labor insertion, technological barrier, and intention to quit during COVID-19. An instrumental design was carried out, where 251 students participated, and a cross-sectional predictive design with a sample of 171. Results showed adequate psychometric properties in assessment scales for self-regulation. Furthermore, the logistic regression model carried out to predict the dropout intention was significant. The final model showed that external causal attributions, planning self-evaluation, forced labor insertion, and technological barriers were significant predictors, achieving a success rate of 84.8%. In conclusion, although many factors are considered in dropout intention models, this study incorporated self-regulation skills that can be promoted in students and systematically integrated into school programs to help reduce dropout rates in secondary education, therefore contributing to a successful transition to higher education.

Keywords: intention to drop, self-regulation of learning, psychometric properties, secondary school, pandemic (COVID19)

INTRODUCTION

Permanent school dropout before completing formal academic studies is a critical problem in the educational systems of many countries, both at the secondary and higher education levels (Cambron et al., 2017). The transition to university requires the deployment of personal competencies, such as self-regulation, in order to adapt and face the new academic demands (van Rooij et al., 2018; Lobos et al., 2021). Compared to secondary school activities, university activities are less continuous, schedules are more flexible, there is less external control, relationships between teachers and students

are more distant, academic demands are more complex, and there is greater heterogeneity among classmates (Sáez et al., 2018).

Currently, researchers agree that the reasons for dropping out do not necessarily arise during the years of higher education. At this educational stage, the strategies deployed to prevent dropout could be late and are considered remedial. Therefore, it is a priority to understand dropout triggers and variables that influence this phenomenon during secondary education, in order to deploy preventive strategies at this educational level (Csók et al., 2020). Dropout rates are considered a quality indicator among educational institutions, due to their high individual and social costs (Antúnez et al., 2016). Socially, it reduces the chance for economic success, considering that we are living in a so-called knowledge society. The possibilities for a country to flourish economically are related to the educational level of its inhabitants. Individually, it affects psychological and physical health in a negative way. As well, it is related to fewer job opportunities, lower wages, increased substance abuse, increased likelihood of having legal or family problems in the future, and higher chance to depend on social assistance or other public assistance programs throughout life (Adelman and Szekely, 2016; Gaxiola et al., 2019; Koc et al., 2020).

The decision to drop out is preceded by the intention to leave. Dropout intention refers to all the thoughts related to the interruption of the permanence in the training cycle, which would lead otherwise to a completion degree (López-Angulo et al., 2021). Although some students drop out from high school without planning to return, in many cases students are involved in an ambivalent process that includes periods of disengagement and reengagement. Their intention to drop out is latent and is therefore a process. This process opens the chance to prevent their permanent disengagement from the school system (Cambron et al., 2017). One of the main priorities of the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2017) is to ensure inclusive and equitable quality education and promote lifelong learning opportunities for everyone.

COVID-19 has generated an unprecedented situation in schools that puts this objective at risk. Students' permanence in the educational system has been negatively affected by technological barriers and forced labor insertion. Both factors are linked to socioeconomic conditions. The use of Information and Communication Technologies (ICT) has tried to minimize the risks of contagion, ensuring the continuity of the learning process. Nevertheless, this has led to the highlighting of social differences regarding the resources available for each family to meet the demands of synchronous classes, increasing exponentially the gaps between students (Tsolou et al., 2021).

The forced labor insertion of adolescents has been an alternative to financially support their families (Arenas et al., 2020). Empirical research has shown that when secondary school students drop out without completing their training and obtaining a degree, the chance of accessing elementary occupations that involve the performance of simple and routine tasks and the use of hand tools increases (Mussida et al., 2019). Forced labor insertion and technological barriers are socioeconomic factors that exclude and marginalize students both socially and educationally. Therefore, they are considered triggers for the intention to leave school prematurely, greatly increasing school dropout rates during pandemic (Mussida et al., 2019; Auger et al., 2020). Although literature considers individual and environmental factors in dropout, Tinto (Tinto, 1975) considered studies abandonment as an individual failure in a certain educational performance. Accordingly with this individual approach, dropout has been associated with a dysfunctional self-regulation of learning (hereinafter SRL) in the student (Bernardo et al., 2019; Bäulke et al., 2021). This means that abandonment of studies is also driven by a lack of cognitive skills (de la Fuente-Arias 2017; Bäulke et al., 2021).

SRL is a cognitive motivational learning system. It is based on a holistic view of the student development, including skills, knowledge, motivations, beliefs, and behaviors related to academic performance. The SRL includes different elements, such as planning an academic task, persistence in the face of frustrating results, and the adjustment of strategies to achieve success. Self-regulation approach represents autonomous, permanent, and effective ways of academic learning (Sáez-Delgado et al., 2021). The classic definition of SRL (Zimmerman, 2000) includes self-generated thoughts, feelings, and actions that are planned and cyclically adapted by the student to achieve personal learning objectives in a three-phase mechanism: (a) disposition, consisting in relevant activities for task analysis, goal setting, and planning; (b) performance, meaning that the task is performed and completed with monitored performance progress; and (c) assessment, which includes results evaluation and reflection (Panadero, 2017).

Researchers have suggested that SRL is related to high academic performance, enhancing the deployment of behaviors oriented to studies completion (Meyers et al., 2013; Cambron et al., 2017). Systematic (regular) cognitive work is critical for success, requiring self-regulatory processes that include study skills such as perseverance and various learning strategies (Meyers et al., 2013). Although there is plenty of theoretical and empirical evidence that supports the role of the SRL in academic performance success (Gaxiola et al., 2019; Romero et al., 2019), there is a lack of empirical evidence establishing associative links between self-regulation and dropout intention in secondary education. One of the possible explanations is the lack of valid and reliable instrument to assess self-regulation phases. A systematic review reported that available assessment instruments of this competence are validated mainly in Europe, having scarce evidence of validation in Latin America (López-Angulo et al., 2020). Also, they focus on the motivational components of self-regulation, excluding the other dimensions of the construct.

Two objectives where set for this research:

1) validate self-regulation phases scale in Chilean students of secondary education;
2) determine the association between self-regulation of learning, job placement, technological barriers, and intention to drop out in Chilean schoolchildren during COVID-19.

MATERIALS AND METHODS

Design

This research was carried out under a quantitative approach in two stages: (1) instrumental design and (2) cross-sectional predictive design.

Participants

The sample was non-probabilistic due to accessibility, including a total of 331 secondary school students from two cities in the Biobío region from Chile. The sample of the first stage (psychometric objective) of this study consisted of 251 students, where 189 (75.3%) were men and 62 (24.7%) were women with a mean age of 16.01 (SD = 1.37) years. The sample of the second stage of this study (association between variables objective) consisted of a total of 171 students, where 111 (64.9%) were men and 60 (35.1%) were women with a mean age of 15.96 (SD = 1.41) years. Inclusion criteria considered secondary school students attending Municipal Administration-dependent educational establishments. Additionally, schools had technical–professional and scientific–humanistic modes of teaching.

The sample of this study belongs to the E-D-C3 socioeconomic classification, which means that the monthly family income is below $600,000 Chilean pesos (751.29 USD as of September 29, 2021). The vulnerability index provided by the JUNAEB (National Board of School Aid and Scholarships; an organization that provides food aid and scholarships to students with the highest vulnerability index in the country) classifies these schools in a 98.7% index.

Instruments

Self-regulation of learning

Self-regulation of learning was assessed with the Scales used to measure the phases of self-regulation of learning, whose version in Spanish was validated in high school students in Ecuador (Sáez-Delgado et al., 2021). It consists of five scales whose internal consistency has been adequate in previous studies ($\alpha > 0.70$; $\Omega > 0.70$). (1) The Disposition for Study Strategies Scale measures the frequency of strategies used to analyze tasks, set objectives, and plan studies. It is one-dimensional and is formed by seven items. An item example is "I make a schedule to organize my study time." It uses a seven-point Likert type scale, where one means "never" and 7 "always." Each item heading/slogan is "before you start to study or perform an academic task, how often." (2) The Self-efficacy Scale for Willingness to Study assesses students' beliefs about their ability to use study preparation strategies. It is one-dimensional and is formed by seven items. An example of an item is "Have a list of academic tasks to do." It uses an 11-point Likert-type scale where 0 means "not sure at all" and 10 means "very sure." The heading for each item is "Before I start studying, to what extent do I think I am capable of." (3) The Execution Scale assesses the frequency of monitoring, cognitive, and help-seeking strategies that the student deploys during their performance on a task. It is formed by two subscales: the cognitive and metacognitive strategies subscale and the seek for help subscale. The cognitive and metacognitive strategies subscale is formed by 14 items. An item example is "I check my study progress." The seek for help subscale is formed by three items. An item example is "I know where to find people that can help me." It uses a seven-point Likert-type scale where 1 means "never" and 7 means "always". The heading for each item is "When I am studying or executing an academic task." (4) The Scale of Causal Attributions assesses beliefs about internal and external factors related to poor performance. It is formed by two subscales: a subscale about causal failure attributions related to effort and ability and a subscale of causal failure attributions related to external factors. The subscale about causal failure attributions related to effort and ability is formed by three items. An item example is "My study disorganization." The subscale of causal attributions of failure related to external factors has five items. An item example is "The lack of motivation of the teacher." It uses an 11-point Likert-type scale where 0 is "I don't think that is so" and 10 is "I'm pretty certain that it is so." The heading for each item is: "To what extent I believe that the reason of my performance failure is due to." (5) The Self-Assessment Study and Learning Scale measures the frequency of assessment and reflection strategies over the achieved results in any academic task. It is one-dimensional and has 14 items. An item example is: "I evaluate if I met my personal learning challenges." It uses a seven-point Likert-type scale where one means "never" and seven means "always." The heading for each item is "When I finish my study or an academic assignment, how often I check if."

The psychometric study about the properties of the Scales that measure the phases of self-regulation of learning in secondary school students in Chile is presented in the results that respond to the first objective of this research.

Dropout intention

A systematic review on abandonment intention revealed that no research used a full scale to assess this variable. Studies used related constructs although the majority created questions (Sáez-Delgado et al., 2020a). For this research, the abandonment intention construct will be understood as the estimated probability of permanently suspending studies by the student. This refers to the informed intention of students to abandon their formal academic training, considered as an early warning sign of real dropout (Bean and Metzner, 1985). To assess this variable, we elaborated a question with a dichotomous answer (yes/no): Related to the current pandemic situation, have you had the intention of dropping out from studies?

Forced labor insertion

For this research, the construct of forced labor insertion will be understood as any economic activity carried out by students who have not completed their training in secondary school (ILO, 2017). To assess this variable, we elaborated a question with a dichotomous answer (yes/no): Related to the current pandemic situation, have you worked to contribute economically to your family income?

Technological barriers

The Technological Barriers construct will be understood as the technological difficulties that the student has for its access or use (Dinc, 2019). To assess this variable, we elaborated the following question with a dichotomous answer (yes/no): Do you have a computer or other technological device with internet access that allows you to participate in synchronous lessons?

Procedures

For the first stage of the study, three steps were followed: (1) content validation through expert judges, (2) validation of the instrument's response format through cognitive interviews, and

TABLE 1 | CFA model estimations of the five Scales of ARA.

	Scales	X^2	Df	RMSEA	(90% CI)	SRMR	CFI	TLI
1	Willingness to study	8.473*	13	0.000	0.000–.040	0.020	1.000	1.000
2	Self-efficacy for willingness to study	27.565*	13	0.067	0.031–.102	0.040	0.969	0.951
3	Execution/performance	207.561*	104	0.063	0.051–.076	0.037	0.925	0.914
4	Causal attributions	28.661*	13	0.070	0.035–.104	0.047	0.974	0.958
5	Study and learning self-assessment	88.465*	43	0.065	0.046–.085	0.028	0.951	0.937

*Df = degrees of freedom of the model; RMSEA, mean square error of approximation (90% CI) = 90% confidence interval for RMSEA; SRMR, standardized mean square error of approximation; CFI, comparative adjustment index; TLI, Tucker–Lewis index; *p <0 .05.*

(3) validation of the dimensional structure through confirmatory factor analysis. A content validation protocol was drawn up and sent to seven expert judges, intentionally selected in base of their academic career, five of them with a doctoral degree and two with a master's degree, all with at least one publication on the SRL topic. They were invited to collaborate in the validation process and informed about the research objectives through an email. Voluntarily they agreed to participate, completing an assigned form with an assessment of each scale item.

The assessment consisted of the item meets or does not meet the criteria of clarity, relevance, sufficiency, and coherence with their respective dimension. The Kappa index was 0.96, which indicates a high degree of agreement among the judges; therefore, no modifications were necessary. Afterward, seven cognitive interviews were carried out with secondary school students. They were selected to identify any comprehension problems in the items, thereby contributing to the scale's response validity. Participants of these interviews signed the respective ethical consents. The results showed that the students understood all the instructions and the meaning of the items; therefore, no modifications were made. Finally, authorization was requested from the school directors, previously invited to participate in the study. Informed consents were requested to the parents of the students invited to the research. Due to the social distancing restrictions resulting from the health crisis imposed by the COVID-19 pandemic, all consents were applied using technological tools. An informed assent was requested from the students, which was included in the first section of the link sent through the SurveyMonkey tool. Only in the case of those who agreed to participate was the instrument displayed to be completed. The second part of the study, which involved a new data collection, followed all the ethical guidelines adapted to the possibilities provided by technological tools.

Data analysis

A confirmatory factor analysis (CFA) was carried out to meet the first objective of this research. It was performed over the five scales that assess all SRL phases. To assess the goodness of fit, the following indices were selected: root mean square error of approximation (RMSEA) with a 90% confidence interval (CI), comparative fit index (CFI), and Tucker–Lewis index (TLI), considering the following criteria: (a) CFI or TLI above 0.90 and (b) RMSEA less than 0.07 (Wang and Wang, 2019). Analysis was carried out in Mplus Version 8.6 software. Prediction analysis, corresponding to the second objective of this study, involved a binary logistic regression model because the variable abandonment intention was answered in a dichotomous way (YES/NO). To assess the model, the likelihood ratio was used. This test calculates the significance of the difference in residuals between the model of interest and the null model. To determine the individual significance of each predictor introduced in a logistic regression model, the Z statistic and the Wald chi-test were used.

RESULTS

First objective results: self-regulation of learning scales CFA

Results show that the five scales adjustment indices met the adequate criteria suggested in the literature RMSEA ≤ 0.07; CFI and TLI > 0.92 and SRMR <0.08 (Hair et al., 2014). Although chi square is significant, the sensitivity of this test to large sample sizes is well known (>200) (Kline, 2011), see **Table 1**.

In some scales, the relative adjustment indicators showed, in the first solution, not optimal indices according to the literature. To respecify the model, the modification indices (MI) were revised. In the willingness to study scale, pairs of residues were found between item 7 "I identify the academic tasks I will carry out first" and item 3 "I tidy up the materials I need to study" (IM = 25,104). These items refer to the way students organize themselves. In the self-efficacy scale for willingness to study, pairs of residues were found between item 7 "Find a comfortable place to study (light, t°, ventilation)" and item 5 "Choose a place to study without distractions" (MI = 24,548). These items refer to the environmental conditions for a proper study. In the execution/performance scale, pairs of residuals were found between item 9 "I write down my doubts to ask the teacher" and item 10 "I meet the study objectives" (MI = 15,572). These items refer to the monitoring of study and learning. In the study and learning self-assessment scale, pairs of residuals were found between item 3 "I performed the tasks at the established times" and item 4 "I evaluate if I met the academic requirements set by the teacher" (IM = 17,568). These items refer to the self-assessment of compliance with the established planning.

As is shown in **Table 2**, four scales were univariate. The scale of willingness to study and self-efficacy for willingness to study

TABLE 2 | Scales to assess self-regulation of learning phases with Likert scales 1 to 7

Escala de disposición al estudio (study willingness scale)								
Item	**En una escala de 1 a 7 donde 1 es nunca y 7 es siempre, responda. Con qué frecuencia, antes de empezar a estudiar o realizar una tarea académica (on a scale of 1–7 where 1 is never and 7 is always, please answer. How often, before you start studying or executing an academic assignment)**							
1	Establezco objetivos académicos a corto plazo (diario, semanal) (I set short term academic goals (daily, weekly)	1	2	3	4	5	6	7
2	Establezco objetivos académicos a largo plazo (mensual, semestral) (I set long term academic goals (monthly, annually)	1	2	3	4	5	6	7
3	Ordeno los materiales para el estudio (I tidy up study materials)	1	2	3	4	5	6	7
4	Hago un horario para organizar mi tiempo de estudio (I elaborate a schedule to organize my study time)	1	2	3	4	5	6	7
5	Planifico el tiempo que voy a dedicar a cada actividad (I plan the amount of time I will use for each activity)	1	2	3	4	5	6	7
6	Tengo una lista con las tareas académicas por hacer (I have a list of academic tasks to do)	1	2	3	4	5	6	7
7	Identifico que tareas académicas realizare primero (I identify the academic tasks I will do first)	1	2	3	4	5	6	7
Escala de ejecución/desempeño (monitoreo, estrategias cognitivas y búsqueda de ayuda) (Execution/performance scale. Monitoring, cognitive and help seeking strategies)								
Item	**En una escala de 1 a 7 donde 1 es nunca y 7 es siempre, responda: Cuando estoy estudiando o realizando una tarea académica (On a scale of 1–7 where 1 is never and 7 is always, please answer: When i am studying or executing an academic task)**							
1	Lo hago de acuerdo a un horario establecido por mí (I do it based on a Schedule established by myself)	1	2	3	4	5	6	7
2	Evalúo si estoy aprendiendo durante el estudio (I evaluate if I´m learning during the study)	1	2	3	4	5	6	7
3	Tengo claro a que compañeros pedirle ayuda si fuera necesario (I know which classmates I can ask for help, if necessary)	1	2	3	4	5	6	7
4	Si no comprendo lo que leo, busco una forma para solucionarlo (If I don't understand what I read, I try to find a way to solve it)	1	2	3	4	5	6	7
5	Sé dónde encontrar a personas que me puedan ayudar (I know where to seek people that can help me)	1	2	3	4	5	6	7
6	Identifico los contenidos que no entiendo bien (I identifiy the topics I don't understand well)	1	2	3	4	5	6	7
7	Memorizo palabras clave para recordarme conceptos importantes (I memorice key words to be able to remember important concepts later)	1	2	3	4	5	6	7
8	Anoto las dudas para preguntar al profesor (I write down my doubts to ask the teacher later)	1	2	3	4	5	6	7
9	Cumplo con los objetivos de estudio (I meet the study goals)	1	2	3	4	5	6	7
10	Reviso el progreso de mi estudio (I check my study progress)	1	2	3	4	5	6	7
11	Hago resúmenes de las ideas principales (I summarize main ideas)	1	2	3	4	5	6	7
12	Reviso si mi planificación de estudio requiere modificación (I check if my study plan needs to be modified)	1	2	3	4	5	6	7
13	Reviso si mi procedimiento/estrategia de estudio es efectiva para aprender (I check if my study procedure/strategy is effective for learning)	1	2	3	4	5	6	7
14	Repito las ideas claves para memorizarlas (I repeat key ideas to be able to memorize them)	1	2	3	4	5	6	7
15	Si no estoy seguro de algún material o contenido pregunto a mis compañeros (If I´m not sure of some material or content, I ask my classmates)	1	2	3	4	5	6	7
16	Cuando estudio reúno información de diferentes fuentes (When I study, I gather information of different sources)	1	2	3	4	5	6	7
Escala de autoevaluación de la planificación del estudio y el aprendizaje (Study and learning planning Self-Assessment Scale)								
Ítem	**En una escala donde 1 es "nunca" y 7 es "siempre", responda. Con qué frecuencia cuando termino mi estudio o una tarea académica reviso si: (On a scale where 1 is "never" and 7 is "always," answer. When I finish my study or an academic assignment, how often do I check if)**							
1	Cumplí con mis objetivos propuestos (I fulfilled the objectives I set)	1	2	3	4	5	6	7
2	Evalúo si completé mis desafíos personales de aprendizaje (I assess whether I completed my personal learning challenges)	1	2	3	4	5	6	7
3	Realicé las tareas en los horarios establecidos (I performed the tasks at the established times)	1	2	3	4	5	6	7
4	Evalúo si alcancé las exigencias académicas establecidas por el profesor (I assess if I have reached the academic requirements established by the teacher)	1	2	3	4	5	6	7
5	Reviso si logré los aprendizajes esperados por el profesor (I check if I achieved the learning goals expected by the teacher)	1	2	3	4	5	6	7
6	Mi planificación fue efectiva (My planning was effective)	1	2	3	4	5	6	7
7	Reviso si logré mis objetivos personales de aprendizaje (I check if I have achieved my personal learning goals)	1	2	3	4	5	6	7
8	Reviso si comprendí los conceptos claves (I check if I understood the key concepts)	1	2	3	4	5	6	7
9	Evalúo si aprendí los contenidos centrales (I assess if I learned the main topics)	1	2	3	4	5	6	7
10	Requiero aumentar mi tiempo de estudio la próxima vez (I need to increase my study time next time)	1	2	3	4	5	6	7
11	Reviso si avancé en relación con mi conocimiento previo (I check if I advanced in relation to my previous knowledge)	1	2	3	4	5	6	7

resulted in seven items each. The first one refers to how students prepare to be ready for study, and the second one refers to the beliefs related to their competencies to be ready to study successfully. The Execution/Performance scale was made up of 16 items related to monitoring, cognitive, and help-seeking strategies performed during the task execution. Item three of the original scale was eliminated, and the factors were joined, resulting in a one-dimensional scale, coherent with the literature. The study and learning self-assessment scales were made up of 11 items, referring to self-assessment strategies for study planning and learning. Items 5, 9, and 11 of the original scale were eliminated. The scale of causal attributions was made up with seven items, and the confirmed factorial structure was of two related factors. Item two of the original scale was eliminated due

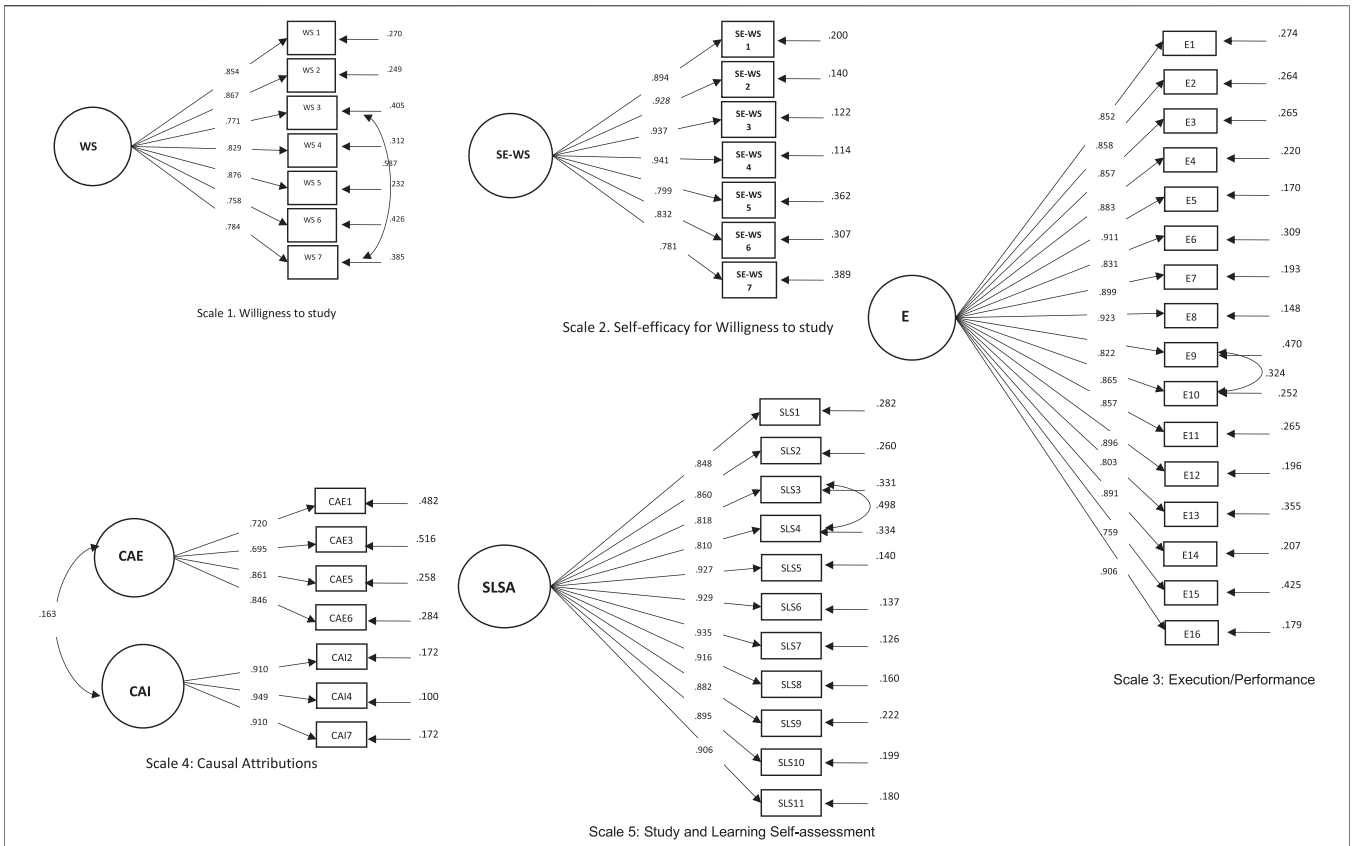

FIGURE 1 | Factorial structure of the scales.

to a load less than 0.40. The five confirmed scales and their respective items add up to a total of 48 items that assess factors related to self-regulation of learning. All the scales showed high loads in relation to the factor they belong to and were significant (see **Figure 1**). Compared to the original scale, four items were eliminated since their factor loadings turned out to be less than 0.40.

The final version of the scales is presented in **Tables 2**, **3**. **Table 2** contains the Likert-format scales from one to seven points, while **Table 3** contains the Likert-format scales from 0 to 10 points.

Second objective results: association between variables

A logistic regression model was carried out to predict the probability of dropout intention. The predictor variables were sex, score average, forced labor insertion, technological barriers, willingness to study, self-efficacy for willingness to study, execution/performance, external and internal causal attributions, and self-evaluation of study planning and learning.

As is shown in **Table 4**, the model was significant $X^2 = 58.039$, $p < 0.001$, so we can assume that the prediction improves compared to the null model.

However, some variables are not significant. Each non-significant variable was eliminated step by step. The final model resulting from the prediction of dropout intention included external causal attributions, self-evaluation of study planning and learning, forced labor insertion, and technological barriers as predictors. **Table 5** shows the coefficients of the logistic regression, the Wald test, and the odds ratio for each predictor. The odds ratio of forced labor insertion indicates that, keeping the other variables constant, students who are working are 6.8 times more likely to present the intention to abandon their studies.

With a 0.5 threshold, the model predicts 83.0% of the cases correctly, but when we consider only those with forced dropout intention (yes), it was right in 19 of the 39 cases (48.7%) (in **Table 6**. For the confusion matrix (threshold at 0.45), we can observe that by adjusting the threshold to 0.45, the prediction of the model is improved to 84.8% of the cases correctly. By considering only the dropout intention (yes), 24 of the 39 cases (61.5%) improved. Graphically this is shown in **Figure 2**.

DISCUSSION

The objectives of this research were (1) to validate the scale of self-regulation phases in Chilean secondary school students and (2) to

TABLE 3 | Scales to assess self-regulation of learning phases with Likert scales 0–10.

Escala de Autoeficacia para la disposición al estudio (willingness to study self-efficacy scale)											
Ítem	**En una escala donde cero es nada seguro y 10 es muy seguro responda. Antes de empezar a estudiar, en qué medida creo que soy capaz de (on a scale where zero is not sure at all and 10 is very sure, answer. Before you start studying, to what extent do I think I´m are capable of)**										
1	Hacer un horario de estudio (Make a study schedule)	0	1	2	3	4	5	6	7	8	9	10
2	Tener una lista de tareas académicas por hacer (Have an academic tasks to do list)	0	1	2	3	4	5	6	7	8	9	10
3	Establecer objetivos de estudio a corto plazo (diario, semanal) (Set short term study goals (daily, weekly)	0	1	2	3	4	5	6	7	8	9	10
4	Establecer objetivos de estudio a largo plazo (mensual, semestral) (Set long term study goals (monthly, biannually)	0	1	2	3	4	5	6	7	8	9	10
5	Elegir un lugar para estudiar sin distracciones (Choose a place to study without distractions)	0	1	2	3	4	5	6	7	8	9	10
6	Tener todos los materiales necesarios para estudiar (Have all the necessary materials to study)	0	1	2	3	4	5	6	7	8	9	10
7	Encontrar un lugar cómodo para estudiar (luz, t°, ventilación) (Find a comfortable place to study (light, t °, ventilation)	0	1	2	3	4	5	6	7	8	9	10
Escala de Atribuciones Causales (Causal Attributions Scale)											
Ítem	**En una escala donde cero es "no creo que sea así" y 10 es "creo con mucha certeza que es así", responda. En qué medida creo que la causa del fracaso en mi desempeño se debe a (On a scale where zero is "I don't think that is so" and 10 is "I think with great certainty that it is so," answer. To what extent do I believe that the cause of my performance failure is due to)**										
1	La desmotivación del profesor (Teacher demotivation)	0	1	2	3	4	5	6	7	8	9	10
2	Mi falta de esfuerzo en el estudio (My lack of effort in studying)	0	1	2	3	4	5	6	7	8	9	10
3	La falta de apoyo de mis amigos (Lack of friends support)	0	1	2	3	4	5	6	7	8	9	10
4	La falta dedicación al estudio (Lack of dedication to study)	0	1	2	3	4	5	6	7	8	9	10
5	La despreocupación del profesor (The teachers unconcern)	0	1	2	3	4	5	6	7	8	9	10
6	Que el profesor me tiene mala (The teacher doesn´t like me)	0	1	2	3	4	5	6	7	8	9	10
7	Mi desorganización del estudio (My study desorganization)	0	1	2	3	4	5	6	7	8	9	10

TABLE 4 | Model significance.

Model	**Deviance**	**AIC**	**BIC**	***df***	X^2	***p***	**McFadden R^2**
H_0	183.631	185.631	188.773	170	54.145	<0.001	0.295
H_1	129.487	139.487	155.195	166			

TABLE 5 | Significance of the variables for the model.

Variables independientes	**β**	**EE**	**X^2w**	**p**	**Odds ratio**
External causal attributions	0.176	0.064	7.5	0.0063**	1.192
Self-Asessment of study planning and learning	−0.601	0.179	11.2	0.0008***	0.548
Forced Labour Insertion	1.919	0.506	14.4	0.0001***	6.814
Technological Barriers	1.236	0.451	7.5	0.0061**	3.442

**p < *.01;* ***p < *.001.*

determine the association between self-regulation of learning, forced labor insertion, technological barrier, and intention to quit during COVID-19. The results obtained are then discussed, and the limitations and finally the practical implications of the study are presented.

A study that systematized SRL assessment instruments revealed the scarcity of available scales to be used in Latin America. The few alternatives in Spanish language where strongly criticized since they focus on only one or two of SRL phases, but they do not consider the complexity of the construct (López-Angulo et al., 2020). Therefore, the result of this study responds to the goal of having instruments that fully measure the construct of SRL based on the classical theoretical models of this research topic. Moreover, it makes available valid and reliable scales to measure the phases of SRL in Chile (Morelli et al., 2021).

TABLE 6 | Significance of the variables for the model.

Observed	**Predicted**	
	1	**2**
1	121	11
2	15	24

1, don't have dropout intention; 2, they have dropout intention.

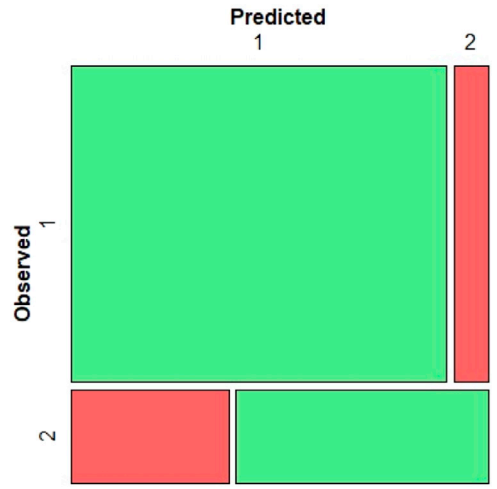

FIGURE 2 | Graph of the confusion variable (threshold a 0.45).

Self-regulation of learning is considered a protective variable of school dropout (Gaxiola et al., 2019); therefore, a proper assessment could help the identification of the specific components for the promotion of skills and development of this competence in the educational context. Although the importance of the SRL is recognized in specialized literature in the achievement of successful performances and meeting educational demands (Meyers et al., 2013; Gaxiola et al., 2019), there is a lack of studies oriented to predict dropout intention integrating SRL among other possible predictor variables in secondary education. The lack of instruments with adequate psychometric properties has stopped the development of studies that assess all SRL phases with different purposes and research scope. This research contributed with an instrument developed as the first objective, taking care of the respective validity evidence in the Chilean context. Subsequently, it was possible to test a composite predictive model of dropout intention by integrating SRL with external causal attributions, self-evaluation of planning, forced labor insertion, and technological barriers, which were significant in predicting dropout intention to quit. The results of this model also showed that the probability of dropping out is higher (6.8 times more) if the student is currently working.

The findings of this research are consistent with previous research. A study carried out with 192 high school students in Mexico aimed to predict the risk of school dropout. The resulting model included as predictor variables the dimension of study planning related to study habits, and self-efficacy for learning, related to self-regulation, explained 37.0% of the phenomenon (Hernández-Jácquez and Montes-Ramos, 2020). Another study of 808 Seattle students showed that students who presented self-regulation difficulties during school were linked to a lower chance of completing their studies. The results support that a low level of self-regulation is a risk factor for obtaining a diploma in secondary education and consequently dropping out of studies (Cambron et al., 2017).

Other similar studies have highlighted the importance of the SRL variable in understanding the dropout phenomenon. An investigation with 781 secondary school students in Luxembourg compared students based on their school results, forming a group that continued their studies and another that were facing school dropouts (potential dropouts versus potential school finishers) (Cahuc et al., 2021). The results showed that self-regulation variables that differentiated the two groups were perseverance in effort and some learning strategies. At other academic levels, it is also possible to find consistency of the present findings. For example, an investigation carried out in the Massive Open Online Courses evaluated SRL strategies to measure their effect over the dropout prediction and showed in their findings that SRL strategies have a very high predictive power (Moreno-Marcos et al., 2020).

Another significant variable in the predictive model of dropout intention was the technological barrier. In Latin America, connectivity in secondary school education has been precarious and uneven since before the pandemic (Sáez-Delgado et al., 2020b). The current scenario imposed by the health crisis led educational institutions to propose solutions that deepened social inequalities and injustices orienting to provide an immediate response, instead of a deep and effective solution. In this way, the access and daily use of ICT revealed a status of access to education and particularly in access to quality education, a basic human right, where the uneven distribution shows a critical inequality (Lusquiño, 2020).

Finally, the model also revealed that forced labor insertion predicts dropout intention. Prior to the pandemic, the research had pointed to this variable as a consequence of precarious economic family situations that triggered the forced labor insertion in order to satisfy the needs of the family group, putting at risk the permanence of high school students in the formal educational system (de Witte and Rogge, 2013). Other studies have considered variables measured before entering to the University, that is, data from secondary education, to understand the process of higher education transition in terms of success and intention to drop out (Lassibille and Navarro, 2008; Allensworth and Clark, 2020). For example, one study created models to identify factors that influence university performance and identify at-risk students (Nagy and Molontay, 2018), using only data from high school students. The results of the study showed that the variables of secondary education that were included in these models have a remarkable predictive power on university graduation. Moreover, high school performance in humanities showed a large impact on the college performance of engineering students.

Undoubtedly, the results of this research are a relevant contribution, but the study has limitations. Sample size is important to have more representativeness of the population. Also, the use of longitudinal designs is necessary to be able to confirm the associative findings of this study. This would facilitate the understanding of the phenomenon over time and the analysis of its trajectory. Finally, the use of dichotomous questions to measure some of the variables in this study is often a controversial mode of measurement that can be improved.

Despite the limitations described above, the findings of this research are relevant if the indices of inequalities and the violation of rights associated with the dissatisfaction of basic needs are considered, in this case education, which is a universal right. Not only the deficiency but also the existing gaps for the quality of education are highlighted. School dropout rates are considered one of the main educational problems that governments must address internationally, due to their negative impact on both individuals and society. Despite multiple attempts to understand and address this phenomenon, there are many students who continue to abandon their studies prematurely, thus reducing their possibilities for personal, professional, and social advancement, and limiting their contribution to the development and innovation of society in which they live (Antúnez et al., 2016). Researchers are encouraged to continue the development of studies to contribute to a deep understanding of the phenomenon, allowing an effective response to high school dropouts.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by Comite de Etica de la Universidad Catolica de la Santisima Concepcion. Written informed consent to participate in this study was provided by the participants' legal guardian/next of kin.

AUTHOR CONTRIBUTIONS

Conceptualization, FS-D and YL-A; methodology, FS-D, YL-A, and JM-N; formal analysis, JM-N and FS-D; writing—original draft preparation, FS-D, CO-G, and HG-V; writing—review and editing, BP, CO-G, and HG-V; supervision, FS-D; project administration and funding acquisition, FS-D. All authors have read and agreed to the published version of the manuscript.

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