Article

Relationship between Student's Self-Determination, Parental Involvement, Special Education Teachers' Support, and College and Career Readiness among Secondary Students with Learning Disabilities in Riyadh, Kingdom of Saudi Arabia

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Abstract: Students' self-determination (SD), parental involvement (PI), special education teachers' support (SETS) in non-academic skills, and college and career readiness (CCR) among secondary students with learning disabilities (SLDs) have been assessed from various perspectives. This study focuses on understanding the levels and relationship between students' SD, PI, and SETS in non-academic skills, and CCR among SLDs in secondary schools from the point of view of SLDs, SLDs' parents, and special education teachers. In addition, this study aimed to verify the gender of SLD as a moderator in the relationship between students' SD and their CCR. Thus, this study designed and developed three sets of questionnaires to investigate the relationship between students' SD, PI, SETS, and CCR among secondary SLDs. The three questionnaires were designed separately to address the SLDs, SLDs' parents, and special education teachers. The questionnaires were answered by 263 SLDs, 264 SLDs' parents, and 63 special education teachers in secondary schools in Riyadh who were selected by using stratified sampling technique and consideration of the sample size to represent the target population of the study. The results revealed that SLDs and special education teachers have a higher level of SD and a higher level of special education teachers' support than parents. The results also indicated that PI is not positively or significantly related to CCR. However, the results indicated that SETS is positively and significantly associated with the student's CCR. Furthermore, the results showed the path coefficient between Students' SD and SETS were not statistically significant ($\beta = 0.171$; $t < 1.96$; $p > 0.05$) but were significantly different between PI and SETS ($\beta = 0.749$; $t > 1.96$; $p < 0.05$). Moreover, the results indicated a significant mediating effect of SETS in the relationship between PI and the endogenous variable, CCR, for SLDs in Riyadh. Additionally, students' gender moderated the relationship between students' SD and their CCR. The findings of this study suggest that improving students' SD and PI, and SETS, may help in fostering CCR among secondary SLDs, and it has a significant implication for parents and special education teachers to be aware of and a greater focus on the importance of developing these aspects.

Keywords: student's self-determination (SD); parental involvement (PI); special education teachers' support (SETS); secondary students with learning disabilities (SLDs)

1. Introduction

The secondary school stage for young people is the starting point of their independence and self-reliance [1]. It is a transitional stage, a stage that connects what precedes it with what proceeds it. Therefore, it is a delicate stage in the life of secondary school students that requires careful deliberation and planning [2]. Many countries have shown interest in the development of students at this stage [3]. It is a stage that is delicate and vulnerable to

all students, particularly students with learning disabilities (SLDs). Schools, colleges, and families are the institutions that are expected to help SLDs to acquire the skills which will enable them to integrate into society [2,4]. At the secondary school level, it is necessary to develop their readiness for college and career. College and career readiness (CCR) is an essential skill required by SLDs, especially as they get ready for the transition from school to college or the job market [5]. In this regard, CCR is the process of preparing students of any age with the essential skills they need to find, acquire, maintain, and grow within a college or job [6]. CCR also refers to the knowledge, abilities, and attitudes required to succeed in post-secondary education and/or the kind of training that leads to meaningful work [7,8]. CCR assists SLDs to grow in their professions as demanded by today's workplace that all employees must be lifelong learners [5].

Additionally, CCR is a legitimate right for every member of society, regardless of the health or social conditions of the individual or any other conditions [9]. Accordingly, the American government has attempted to integrate people with special needs in general, and SLDs in particular, in the national forces to participate in the comprehensive development process. This is so that the SLDs can ultimately become successful citizens who accept their condition, and who are accepted as active participants in their society rather than dependents [10].

Some authorities argued that the inclusion of CCR as part of special education programmes in secondary schools can play an essential role in improving the academic performance and non-academic skills, such as self-determination and career readiness, necessary for future employment and independent living of SLDs [11]. Thus, there must be a kind of development of non-academic aspects such as SD and CCR, which can only be achieved with parental involvement (PI) in special education programmes, and special education teachers' support (SETS). The mesosystem layer provides the connection between the structures of the student's microsystem [12], e.g., the connection between students and their special education teachers' support to improve non-academic skills such as SD and CCR between SLDs, and their parents. This relationship, without a doubt, makes SLDs' parents aware of the needs and capabilities of their children. Therefore, SLDs' parents and special education teachers of SLDs should work together with the special education programme team to enhance their non-academic skills and facilitate the process of making them independent in the future. This process means that the special education programme team, secondary school administrations, and parents at home are required to pay more attention to enhancing the SLDs' SD and their CCR. To this end, the SD of SLDs is targeted as the motive force that ensures they become integrated members of the society.

As a psychological construct, SD suggests that understanding of human motivation requires consideration of innate psychological needs for competence, autonomy, and relatedness [13]. In addition, SD was defined as the need for the necessary conditions for psychological growth, integrity, and well-being [14]. In view of all that have been discussed above, the current study aimed to investigate the relationship between student's SD, PI, SETS, and CCR among SLDs in Secondary Schools in Riyadh, Kingdom of Saudi Arabia (KSA).

1.1. Background

The Ministry of Education (MOE) in KSA has been supporting the development of secondary schools because they play a vital role in preparing these students beyond this transitional stage [15]. However, modern public education, which started in 1936, emphasized literary subjects such as language and religion [16]. As a result, the educational outcomes were unsatisfactory because many students did not achieve the desired professional and technical skills needed to function as productive citizens [17,18]. In response, MOE, in 1995, established two tracks for secondary students, literary and scientific, to cope with the differences in abilities and skills among students [19]. In 2004, the education system at secondary schools followed the curriculum system where students were given the option to choose their preferred track or a combination of subjects depending on their inclinations and abilities so that it can ultimately help them choose what suits their abilities [20,21].

In the past few years, there has been an increasing interest in special education programmes offered to SLDs, and the trend is expanding in quantity and quality in order to reach as many SLDs as possible including adults [22]. Before the promulgation of KSA special education laws, special education programmes offered to students with special needs were very limited [23]. The law introduced amendments that require students with special needs to receive a free education until they reach 21 years of age [16]. Considering past literatures, research conducted in the seventies and eighties of the last century focused on the characteristics of SLDs at the secondary level, and the results showed that the same social and academic problems faced by SLDs in childhood continue through adolescence and adulthood [24]. With the contemporary initiative by the government, which has gradually produced many positive outcomes for SLDs in their CCR, teaching and research focus have shifted to strategies to improve SLDs' learning and transition to future career [20].

1.2. Students' Self-Determination and Secondary Students with Learning Disabilities (SLDs)

The need to impart SD skills began more than three decades ago [25]. The aim was to provide SLDs with essential skills so that they could apply the skills to develop other non-academic skills. Recently, researchers provided seminal works on understanding how to develop SD skills so that individuals could learn how to choose what suits their needs and abilities in order to be able to direct their efforts toward their specific goals and avoid external distractions [26]. Literatures has averred that SD is a significant guide in SLDs lives [27]. It enables them to make choices and decisions for a better quality of life with the least possible outside influence or interference [10].

Theoretically, promoting SD of SLDs has become the best practice in special education [28]. Higher levels of SD have been linked to a wide array of positive school and adult outcomes, which includes improved academic results and functional goal attainment [18,21]. Despite the evidence-based research on the impact of SD for SLDs, it was argued that SLDs in secondary schools lack SD skills, which affects their level of self-confidence and their level of independence and self-reliance [22,26]. Moreover, due to the inadequate special education programme provided to SLDs, they show poor acquisition of CCR skills despite the importance of SD skills beyond the secondary school stage [28]. It was indicated that SLDs in secondary schools lack SD skills, confidence in their choices, problem-solving, and decision-making skills [29]. In addition, they suffer low levels of self-awareness [30]. These shortcomings accentuated the need for educational interventions to help SLDs develop critical SD skills [31].

1.3. Parental Involvement (PI) and Secondary Students with Learning Disabilities (SLDs)

Higher levels of SD among SLDs, together with appropriate external support such as parental involvement (PI) and special education teachers' support (SETS), lead to greater access to the general education curriculum [32,33]. This further highlights the critical role of PI in empowering SLDs. However, PI in special education programmes at secondary schools in KSA is still weak [34]. This weakness has been attributed to the lack of flexibility in providing special education programmes and limiting the parents' involvement in educational programmes set for SLDs [24]. Furthermore, the lack of a plan to leverage the use of media as a platform aimed at educating parents on the importance of participation partly explains why parents do not find the time to participate in the special education programmes [34]. In addition, some schools do not accept the idea that parents are schools' partners in ensuring the child's educational progress [35]. However, while some parents are willing to participate in the special education programmes, the nature of their work prevents them from actively participating [32]. Other reasons for non-parental involvement include a lack of practical skills related to learning disabilities and economic problems that prevent the parent from supporting the student effectively [6].

To this end, a related study [20] confirmed that the recent trends in special education had emphasized the importance of PI in the educational programme for secondary school SLDs, given that PI has positive outcomes in achieving the educational goals of

special need students. On a broader level, Saudi citizens must start acquiring a broader range of knowledge, skills, and abilities than ever before for KSA to meet its target of becoming a knowledge economy as spelt out in the Vision 2030 documents. KSA will need a much higher percentage of its adolescents—including those with disabilities—to earn post-secondary credentials and degrees that allow them to compete in society and be productive citizens [15]. In this connection, CCR with SLDs and the instrumentality of PI will make significant contributions towards meeting Vision 2030 objectives [23]. Therefore, it is crucial to understand the interplay between CCR, PI, SETS, and SD of SLDs as a basis for achieving the necessary transformations in special needs education in KSA.

Significant impact of PI is undeniable. Nevertheless, schools have pointed out the negative attitude of parents to get involved in their children's transitional services. There are parents who are reluctant to participate in transition programmes for SLDs in secondary schools. SLDs in secondary schools apparently lack the experience of PI in special education programmes despite its obvious positive role in contributing to the development of SLDs psychologically, academically, and professionally in the future [36,37]. As stated in a study of transitional plans, 37% of SLDs' parents do not know about special education programmes [37]. This implication has negatively affected SLDs' personalities and decision-making and academic skills. The weak PI in translation services can thus be considered as one of the causes that led to SLDs' lack of college and job readiness, which in turn, cause absence of good decision-making, self-regulation, and SD skills, and the absence of understanding of SLDs' own abilities [29]. The results of a study done by [24] on transfer services for SLDs to post stage secondary. ALMedlij [19] indicated that PI, despite its importance, is scarcely available in KSA secondary schools.

1.4. Special Education Teachers' Support (SETS) for Non-Academic Skills and Secondary Students with Learning Disabilities (SLDs)

In addition to SD and PI, SETS may influence SLDs [32]. Indeed, Wu [38] found that the practices applied by special education teachers to develop SD skills have a clear role in developing students with physical disabilities (including SLDs). Therefore, both parents and teachers of SLDs should work side by side with the special education programme team to enhance SLDs' non-academic skills, for instance, SD and CCR, and facilitate the process of making them independent in the future. This process means that the special education programme team, together with secondary school administrations and parents at home, are required to pay more attention to enhancing the SLDs' SD skills and their CCR.

1.5. College and Career Readiness (CCR) and Secondary Students with Learning Disabilities (SLDs)

CCR is an essential skill required by SLDs, especially as they get ready for the transition from school to college or the job market. In this sense, CCR is the process of preparing students of any age with the essential skills they need to find, acquire, maintain, and grow within a college or career [39]. CCR also refers to the knowledge, abilities, and attitudes required to succeed in post-secondary education and/or the kind of training that leads to meaningful work [8]. To grow in their professions, all employees are demanded by today's workplace to be lifelong learners [40].

1.6. Research Questions

1. What are the levels of Students' SD, PI, SETS, and CCR for SLDs enrolled in special education programme in Riyadh secondary schools?
2. What are the differences in the levels of Students' SD, PI, SETS, and CCR for SLDs in Riyadh secondary schools with respect to gender?

1.7. Research Hypothesis

H$_1$: *Students' SD is positively and significantly related to the student's CCR.*

H$_2$: *PI is positively and significantly related to the student's CCR.*

H$_3$: *SETS is positively and significantly related to the student's CCR.*

H$_4$: *Students' SD is positively and significantly related to the SETS.*

H$_5$: *PI is positively and significantly related to the SETS.*

H$_6$: *There is a mediating effect of SETS in the relationship between students' SD and CCR.*

H$_7$: *There is a mediating effect of SETS in the relationship between PI and SLDs' CCR.*

H$_8$: *Students' gender moderates the relationship between SD and CCR among secondary school SLDs enrolled in special education programme in Riyadh.*

2. Materials and Methods

2.1. Research Design and Participants

According to Creswell [41], a non-experimental design selects a sample from a survey population and conducts a sample survey, finally generalizing the results of this sample to that population. Non-experimental studies were more important than empirical studies because most educational problems were not suitable for experimentation [42]. Moreover, some important variables such as gender cannot be manipulated since they cannot be checked using experiments [43]. Therefore, a non-experimental quantitative correlational cross-sectional research design was employed in this study. It is a descriptive analytical study using three questionnaires (see Supplementary Materials) via online platform to obtain responses from participants that helps give answers to the questionnaire of the study in order to achieve research objectives.

2.2. The First Pariciplants and Their Demographic Characteristics

The first participants in this study were the SLDs in secondary schools that include a learning disabilities program in Riyadh, which has the largest population of SLDs in Riyadh, Saudi Arabia [23], for the academic year 2021/2022.

Based on the population and consistent with the purpose of the study and sampling frame, stratified sampling technique was used to select an equal number of schools from each educational district in Riyadh. To calculate the number of each strata, the total expected sample size was divided by the average number of SLDs. From the total number, the expected samples are 263. Then, 263 was further divided by 25; the result obtained was approximately 43 secondary schools (31 secondary schools have learning disabilities for female students and 12 for male students) since Saudi Arabia's secondary school system segregates schools based on gender [22]. It is important to note that there are more female special education teachers than male ones [44], therefore, ALMedlij [19] indicated that this is what caused the numbers of female students to be higher than those of male students, because learning disabilities programmes are more prevalent in female secondary schools than in male secondary schools. Table 1 shows the descriptive characteristics of the SLDs.

Table 1. Descriptive characteristics of the respondents of SLDs in secondary schools in Riyadh.

Characteristics	Categories	SLDs n (%)
Gender	Male	66 (25.1)
	Female	197 (74.9)
Class	First secondary	45 (17.1)
	Second secondary	46 (17.5)
	Third secondary	172 (65.4)
Total		263 (100)

2.3. The Second Paricipants with Their Demographic Characteristics

The second participants in this study were the parents—"one of the parents" of each SLD—in secondary schools in Riyadh. The questionnaire was developed to discover the level of self-determination when experiencing learning difficulties, parental involvement, special education teachers' support in non-academic aspects, and college or job readiness for secondary students with learning disabilities from the parents' point of view. As shown in Table 2, from the total number, the expected samples are 264, with the demographic clarification of the characteristics considered, such as gender and educational level.

Table 2. Descriptive characteristics of the respondents of parents of students with learning disabilities in secondary schools in Riyadh.

Characteristics	Categories	Parents n (%)
Gender	Male	71 (26.9)
	Female	193 (73.1)
Educational level	BA	138 (52.3)
	Masters	33 (12.5)
	PhD	40 (15.2)
	Others	53 (20.1)
Total		264 (100)

2.4. The Third Questionnaire Which Was Directed to Special Education Teachers in Secondary Schools in Riyadh

The third participants in this study were special education teachers who provide the support to SLDs in secondary schools in Riyadh. The questionnaire was developed to know the level of self-determination when experiencing learning difficulties, parental involvement, special education teachers' support in non-academic aspects, and college or job readiness for secondary students with learning disabilities from their point of view. As shown in Table 3, from the total number, the expected samples are 63 with the demographic clarification of the characteristics considered such as gender, year of experience, and educational level.

Table 3. Descriptive characteristics of the respondents of special education teachers in secondary schools in Riyadh.

Characteristics	Categories	SET n (%)
Gender	Male	13 (20.6)
	Female	50 (79.4)
Educational level	BA	47 (74.6)
	Masters	13 (20.6)
	PhD	3 (4.8)
	Others	-
Years of Experience	1 year–4 years	24 (38.1)
	5 years–10 years	21 (33.3)
	More than 10 years	18 (28.6)
Total		63 (100)

2.5. Measurement Instruments

The three questionnaires in this study were developed from previous literature. The SD items were formulated from [31,45–48], the PI items were formulated from [49–51], the SETS items were developed from [52,53], and the CCR items were formulated from [9,27,54–56]. There was also focus on study hypothesis during the formulation of the questionnaires.

Consequently, it was developed based on both the theories and previous studies that have been utilized in this study. All questionnaires were designed in Google Form and sent via an electronic link to students with learning disabilities, their parents, and special education teachers by secondary school principals. It was not easy to meet the participants face to face because of implementation of lockdown due COVID-19 in some districts. The questionnaires were prefaced with instructions and provided participants with a phone number in case they had any questions. The sections in the three questionnaires used a five-point Likert scale (5 = strongly agree, 4 = agree, 3 = fairly agree, 2 = disagree, 1 = strongly disagree) [57], with the exception of the first section from all questionnaires, which contains profile of the respondents.

2.6. Questionnaire Designed for SLDs on SD, PI, SETS, and CCR

The first section of the questionnaire includes the participants' demographic and personal information, which are related to the study (name, gender, grade, name of school, and email). Section one includes similar types of questions because the resulting information will support the analysis of the data and determine how the effects of the demographic variables, especially gender, might affect the results of the current study.

The second section enlisted 16 items which measure the student's level of SD at secondary SLD.

The third section has six items to investigate the level of PI in a special education programme from the point of view of students with learning disabilities.

The fourth section was divided into five items to investigate the level of SETS to develop CCR, SD, or any non-academic skills among SLDs in secondary.

Finally, the fifth section was divided into five items to measure the level of college and career readiness for secondary students with learning disabilities.

2.7. Questionnaire Designed for Parents of SLDs on SD, PI, SETS, and CCR

The first section included the participants' demographic and personal information related to the study (name, gender, educational level, and email address).

Section one includes similar types of questions because the resulting information would help to analyze the data and determine how the effects of the demographic variables might affect the results of the current study.

The second section was divided into 16 items that measure the student's level of SD for secondary students with learning disabilities.

The third section was divided into seven items to investigate the level of PI in special education programmes from the point of view of parents of students with learning disabilities.

The fourth section was divided into five items to investigate the level of SETS to develop CCR and SD or any non-academic skills among SLDs in secondary schools.

Finally, the fifth section was divided into five items to measure the level of CCR for secondary students with learning disabilities.

2.8. Questionnaire Designed for Special Education Teachers on SD, PI, SETS, and CCR

The first section included the participants' demographic and personal information related to the study (name, gender, experience years, educational level, and email address). Section one has similar types of questions because the resulting information would help to analyze the data and determine how the effects of the demographic variables might affect the results of the current study.

The second section was divided into 10 items that measure the level of SD of secondary students with learning disabilities.

The third section was divided into six items to investigate the level of PI in special education programmes from the point of view of special education teachers.

The fourth section was divided into five items to investigate the level of SETS to develop CCR and DS or any non-academic skills among SLDs in secondary schools.

Finally, the fifth section was divided into five items to measure the level of CCR for secondary students with learning disabilities.

2.9. Translation of the Study Questionnaires

The study questionnaires were developed in two versions, Arabic and English, and was approved by an authorized translation office in the city of Riyadh, which confirmed that the expressions in the two languages were identical and the translation appropriate and accurate.

2.10. Pilot Study

The pilot study is an online form for all three questionnaires. They were distributed randomly to students with learning disabilities ($n = 56$), their parents ($n = 62$), and their special education teachers (24) in secondary schools in Riyadh.

Five experts validated the questionnaires, and exploratory and confirmatory factor analyses were used to determine the psychometric features of the assessment tools. The factor loadings of items in each construct (SD, PI, SETS, and CCR) were examined in order to verify the uni-dimensionality of the theoretical constructs. The exploratory factor analysis (EFA) was done with maximum likelihood method with varimax rotation for analyzing the factor structure and the correlation between the items included in the scales. The multicollinearity between the items was initially verified before the final stage of the analysis. The Kaiser–Meyer–Olkin (KMO) for all the single factors considered (SD, PI, SETS, and CCR) with regards to the groups of the respondents considered in the study, SLD, parents, and special education teachers were all above 0.50, which indicates that the sample size for the pilot study was adequate.

The Bartlett tests of sphericity were all statistically significant ($p < 0.05$), which shows that the correlation matrix is statistically different from an identity matrix. In addition, the total variance explained by each factor explored was above 50%.

In addition to exploration of factors and validation, the reliability of the instruments was also verified, with results showing that the Cronbach alpha exceeded 0.80 for each subscale. However, the values higher than 0.90 are not necessarily good, since it might be an indication of redundancy. Hundleby [58] indicated the acceptable values of alpha, ranging from 0.70 to 0.95. Additionally, Schrepp and Taber [59,60] indicated that values between 0.90 and 1 reflected higher reliability. In addition, a study by Ursachi [61] confirmed that some in science education studies are not satisfied with the values of alpha treatment in some studies, because society is subject to psychological changes without reason.

2.11. Data Collection

The study was conducted in the Kingdom of Saudi Arabia, Riyadh city from the middle of February 2022 until the end of May 2022. To gather the required data, an online form of the Arabic version of the three questionnaires were distributed. The first questionnaire was to SLDs, the second was to parents of SLDs, and the third was to special education teachers in secondary schools in Riyadh, Kingdom of Saudi Arabia.

2.12. Data Analysis

After the research data collection, that data was wrangled and coded based on the 5-point Likert scale proposed before proceeding to the statistical analysis. Missing values were not an issue because questionnaires were assigned to the respondents through Google forms which mandate every item as compulsory before answering the next item. The study used Statistical Package for Social Sciences (SPSS) version 26 to estimate the levels of the SD, PI, SETS, and CCR among SLDs in secondary schools located in Riyadh and examined the differences based on SLDs' gender. Furthermore, co-variance-based SEM using AMOS version 26 was conducted to test the relationships between the variables and test the hypothesized model. Primarily, the confirmatory factor analysis was employed to test the psychometric properties (such as convergent validity, divergent validity, and

reliability) for all constructs. Finally, the structural model was conducted to test the direct and indirect hypothesized relationship.

2.13. Ethics

Prior to data collection, the conduct of the three questionnaires were approved by the Ministry of Education, "Education Administration, Department of Planning and Development", Riyadh. Additionally, respondents were advised of the confidentiality of their participation.

3. Results, Findings, and Hypotheses Testing

3.1. Research Question 1: What Are the Levels of Students' DS, PI, SETS, and CCR for Students with Learning Disabilities Enrolled in Special Education Programmes in Riyadh?

The first research question of this study focused on determining the level of SD, PI, SETS, and CCR among secondary school SLDs enrolled in special education programmes in Riyadh. Descriptive statistics (mean and standard deviation) was employed to answer this research question.

Figure 1 summarized the results for all constructs across the three groups of the respondents (students, parents, and special education teachers). Note that the difference based on the mean is negligible as all these domains are at the same level, which is reasonable. It can be observed that students (M = 2.65) and special education teachers (M = 2.64) have higher mean regarding their perception of student's SD compared to parents' perception (M = 2.19). Similarly, and interestingly, both students (M = 2.57) and teachers (M = 2.51) have higher mean regarding perception of PI compared to parents (M = 2.25). In addition, students (M = 2.64) and teachers (2.84) have a higher mean concerning teachers' support compared to parents (M = 2.26). However, teachers (M = 2.52) have a lower mean compared to students (M = 2.84) and parents (M = 2.67) regarding SLDs' CCR. It can be concluded that all three groups of respondents reported adequate level of perception regarding these four constructs, i.e., SD, PI, SETS, and CCR, but parents show lower mean compared to students and teachers in three constructs, namely SD, PI, and SET.
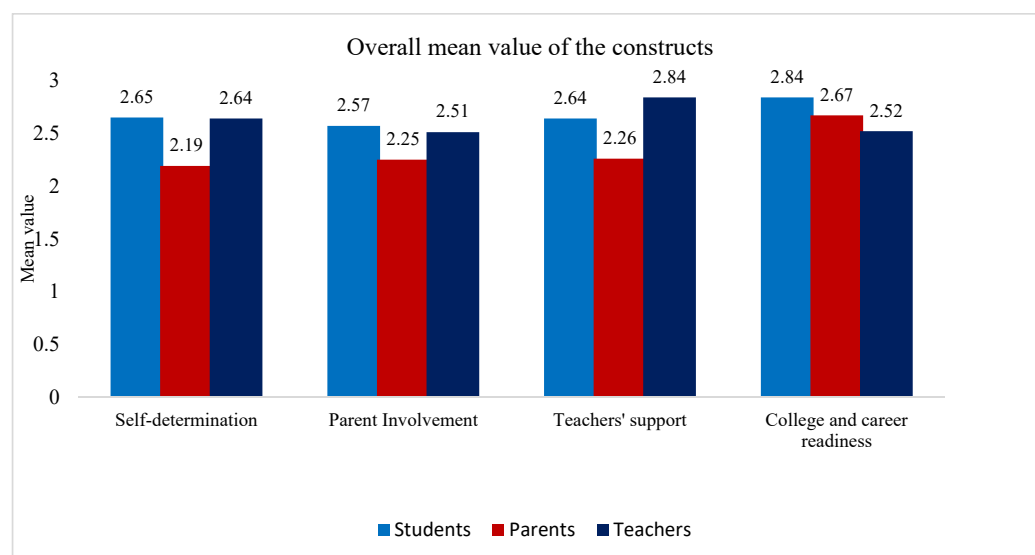

Figure 1. Summary of the overall mean of the SD, PI, SETS, and CCR based on the perspective of the SLDs, parents of the SLDs, and special education teachers.

3.2. Research Question 2: Gender Differences in the Levels of Students' SD, PI, SETS, and CCR for SLDs in Secondary Schools, Riyadh, Kingdom of Saudi Arabia

To answer this question, only questionnaire (1) was used. A series of four independent two-tailed sample *t*-tests were conducted on the mean scores of the constructs for each participant to determine if male SLDs (*n* = 66) and female SLDs (*n* = 197) differed significantly

on the levels of SD, PI, SETS, and CCR. All the *p*-values were considered at α-level of 0.05 ($p < 0.05$). The *t*-test results were presented in Table 4. All four variables were found to be significantly different between male and female SLDs.

Table 4. Independent Samples *t*-test of variables by SLDs' Gender.

Constructs	Gender	M	SD	t	df	p	Result
Self-Determination	Male	3.651	0.979	9.669	261	0.000	Significant difference
	Female	2.335	0.770				
Parental Involvement	Male	3.406	1.007	7.943	261	0.000	Significant difference
	Female	2.304	0.747				
Teachers' Support	Male	3.530	0.979	8.667	261	0.000	Significant difference
	Female	2.357	0.743				
College and Career Readiness	Male	3.768	0.968	8.957	261	0.000	Significant difference
	Female	2.549	0.809				

Note: M—mean; SD—standard deviation; t—T test; df—degree of freedom; *p*—*p*-value.

3.2.1. Self-Determination (SD)

An independent samples *t*-test was conducted to compare level of SD between male ($n = 66$) and female ($n = 197$) SLDs secondary schools in Riyadh. There was a significant difference on SLDs' gender, t (261) = 9.669, *p* = 0.000, where male students (M = 3.651, SD = 0.979) have higher level of SD than female students (M = 2.335, SD = 0.770). These results suggest a significant difference in SD across gender among SLDs.

3.2.2. Parental Involvement (PI)

An independent samples *t*-test was conducted to compare level of PI between male ($n = 66$) and female ($n = 197$) SLDs secondary schools in Riyadh. There was a significant difference for SLDs' gender, t (261) = 7.934, *p* = 0.000, where male students (M = 3.406, SD = 1.007) have higher level of PI than their female counterparts (M = 2.304, SD = 0.747). These results affirm a significant difference in PI across gender among SLDs.

3.2.3. Special Education Teachers' Support (SETS)

An independent samples *t*-test was also conducted to compare level of SLDs' perception of SETS between male ($n = 66$) and female ($n = 197$) SLDs secondary schools in Riyadh. There was a significant difference for SLDs' gender, t (261) = 8.667, *p* = 0.000, where male SLDs (M = 3.530, SD = 0.979) have higher level of SETS than their female counterparts (M = 2.357, SD = 0.743). These results suggest a significant difference in SETS across gender among SLDs.

3.2.4. College and Career Readiness (CCR)

An independent samples *t*-test was conducted to compare level of CCR between male ($n = 66$) and female ($n = 197$) SLDs secondary schools in Riyadh. There was a significant difference for SLDs' gender, t (261) = 8.957, *p* = 0.000, where male students (M = 3.768, SD = 0.968) have higher level of CCR than their female counterparts (M = 2.549, SD = 0.809). These results confirm a significant difference in CCR across gender among SLDs.

3.3. The Measurement Models

3.3.1. Reliability of Constructs

The Cronbach's Alpha reliability test was carried out using SPSS version 26 to examine the reliability (internal consistency) of the constructs in the instruments. The results of the reliability analysis revealed that in secondary schools in Riyadh, students' SD, PI, SETS, and CCR for SLDs indicate acceptable levels of dependability values. The findings demonstrated that every construct's dependability value is above the generally acceptable cutoff point of 0.8.

3.3.2. The Assessment of the Measurement Model

In research involving structural equation modelling, there are two major steps which are (1) measurement model and (2) structural model [62,63]. The measurement model, which specifies the indicators for each concept and enables an assessment of construct validity, is the first phase [62,64]. The measurement model determines how each construct is measured according to Farrar [65]. Additionally, it is called a confirmatory factor analysis (CFA). In this sense, CFA in this study aims to measure the dimensionality of the study variables. CFA is a key step in analysing the validity and reliability of the latent variables [64,66]. Students' SD, PI, SETS, and CCR for SLD secondary schools in Riyadh, Saudi Arabia, are the factors.

Convergent and discriminant validity were evaluated in addition to model fit to ensure validity. Additionally, composite reliability testing was used to gauge construct reliability (CR). According to Hair [67]. convergent and discriminant validity were used in this study to assess validity. To do this, some scholars [67,68], suggested the acceptable value of indices on the table in the model fit procedures, in which each variable was measured separately. Results related to Measurement Model Fit (CFA) for each variable, reliability, and validity are explained in the following subsections.

3.3.3. Confirmatory Factor Analysis for College and Career Readiness

CCR in this study is a unidimensional variable. In order to estimate the degree of correspondence between the theoretical constructs and the observed data, the goodness of fit (GOF) indices were initially determined. RMSEA value was 0.073, an acceptable value. The comparative fit index (CFI) = 0.986 and TLI = 0.972, which was more than the suggested value. However, the loading for one item (CCR2) is smaller than the acceptable valued (0.50). Hence, the present measurement model needs to be revised (see Figures 2 and 3).

The measurement model of college and career readiness was revised. As a result, one with low loading (CCR2), which was less than 0.5, was eliminated. The final college and career readiness measurement model established a good fit to the data after the problematic items were removed, and all of the remaining items were significant reflective indicators of the connected constructs of the college and career preparedness. The model displayed a Chi-square (2) value of 0.023, a degree of freedom of 1, and a *p*-value of 0.880 to illustrate the outcome. The suggested value of 0.08 was exceeded by the RMSEA value of 0.000. CFI was 1.000 and TLI was 1.013, both of which were larger than 0.90 (see Figure 4). This led to the development of the final measuring model, which produced satisfactory results.
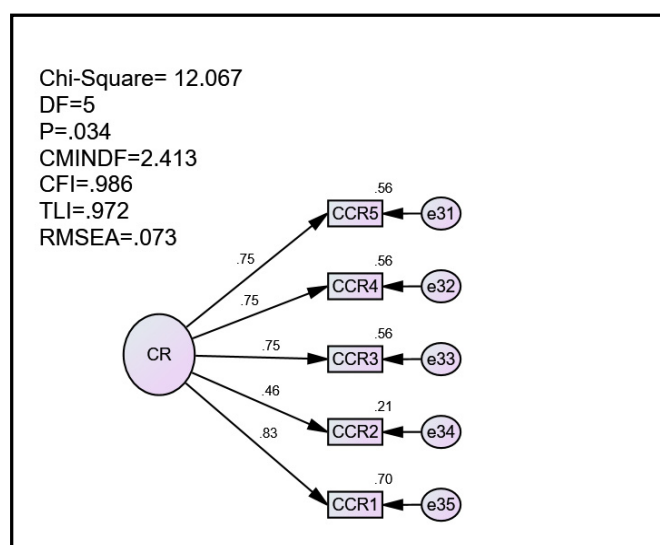

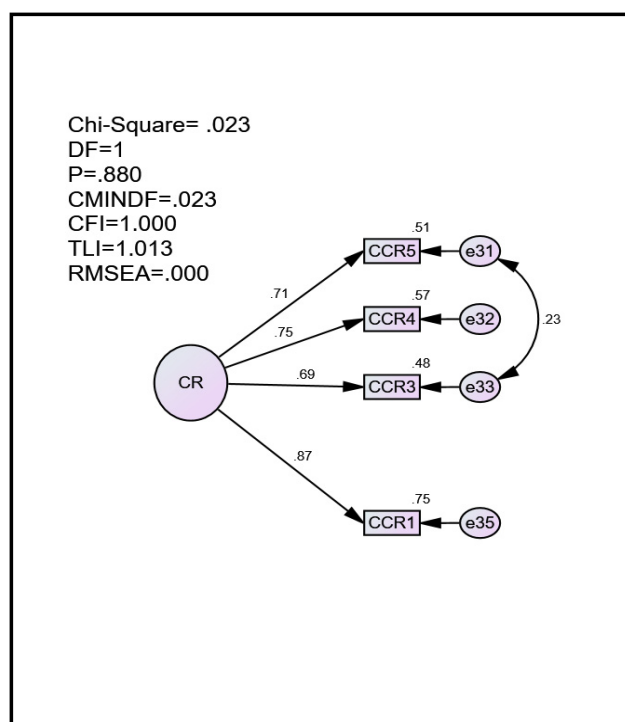**Figure 2.** The First Initial Confirmatory Factor Analysis for CCR for diagram 1.

Figure 3. The Second Initial Confirmatory Factor Analysis for CCR after deleting CCR2 for second diagram.
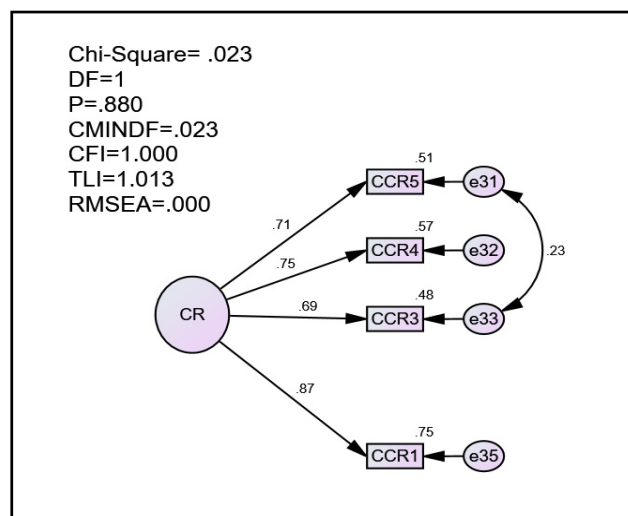

Figure 4. The Revised Confirmatory factor analysis for CCR.

3.3.4. Confirmatory Factor Analysis for Parental Involvement (PI)

Parental Involvement in this study is a unidimensional variable. To measure the degree of concordance between the theoretical constructs and the observed data, the goodness of fit (GOF) indices were determined. Figure 5 shows the results of the estimation, and the model's fit statistics revealed a non-significant Chi-square (2) value of 9.104, a degree of freedom of 14, and a *p*-value of 0.824. It was less than 3 when the normed Chi-square (2) = 0.650. The suggested value of 0.08 was exceeded by the RMSEA value of 0.000. CFI and TLI both had values more than 0.90, at 1.000 and 1.009, respectively (see Figure 5). As a result, the final measuring model was developed with results that were satisfactory.
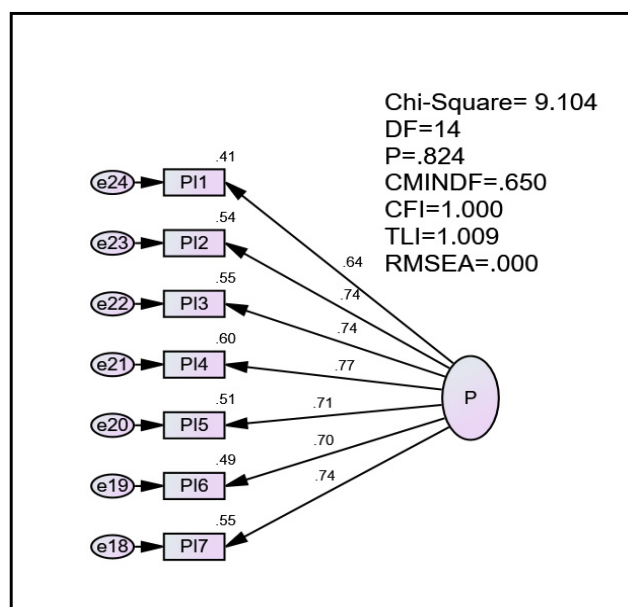
Figure 5. Confirmatory factor analysis for PI.

3.3.5. Confirmatory Factor Analysis for Special Education Teachers' Support (SETS)

SETS in this study is a unidimensional variable. To measure the degree of concordance between the theoretical constructs and the observed data, the goodness of fit (GOF) indices were determined. Figure 6 displays the results of the estimation, and the model's fit statistics revealed a non-significant Chi-square (2) value of 18.322, degree of freedom = 9, and *p*-value = 0.824. It was less than 3 when the normed Chi-square (2) = 2.036. The RMSEA score of 0.063 fell short of the suggested level of 0.08. The CFI and TLI values were both larger than 0.90 at 1.000 and 1.009, respectively (see Figure 6). Consequently, the final measurement model was accomplished, producing appropriate results.
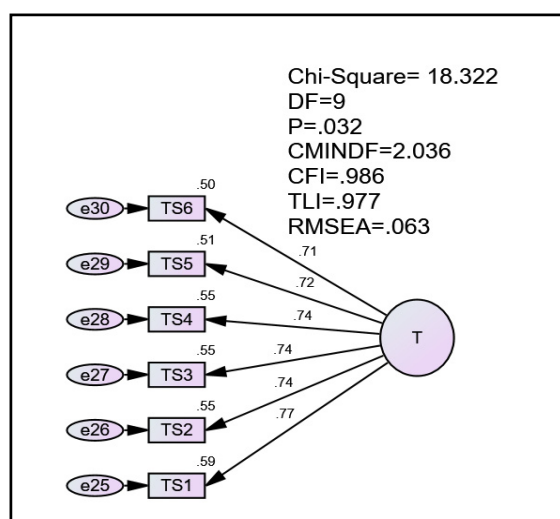

Figure 6. Confirmatory factor analysis for SETS.

3.3.6. Confirmatory Factor Analysis for Students' Self-Determination (SD)

Students' SD among secondary SLDs in this study is a unidimensional variable as discussed. To measure the degree of concordance between the theoretical constructs and the observed data, the goodness of fit (GOF) indices were determined. Figure 7 displays the results of the estimation, and according to fit statistics, the model had a non-significant Chi-square (2) value of 205.024, 119 degrees of freedom, and *p*-value = 0.000. It was less

than 3 when the normed Chi-square (2) = 1.723. The RMSEA score of 0.053 fell short of the suggested level of 0.08. CFI and TLI values were both higher than 0.90 at 0.974 and 0.970, respectively (see Figure 7). As a result, the final measuring model was developed, with results that were satisfactory.
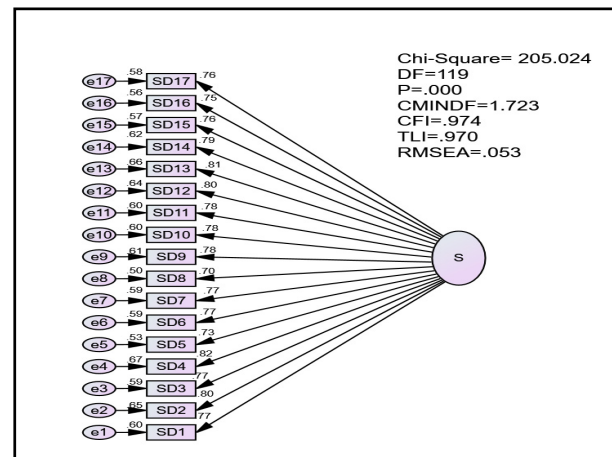

Figure 7. Confirmatory factor analysis for Students' SD.

3.3.7. The Over-All Measurement Model Fit

This section presents the findings of the confirmatory factor analysis (CFA) for the four constructs together after completing the model fit checks for each variable individually. In this sense, the purpose of CFA in this study was to quantify the dimensionality of the studied variables. The variables are students' SD, PI, SETS, and CCR for SLDs in secondary schools in Riyadh. As the first result of the model fit, the Chi-square (χ^2) value was 887.145, with 520-degree freedom, and *p*-value = 0.000. In addition, the RMSEA was 0.052, which was less than 0.08. The CFI = 0.943 and TLI = 0.939, which already achieved the suggested value 0.90 (see Figure 8). Hence, the final measurement model was achieved which yielded satisfactory result.
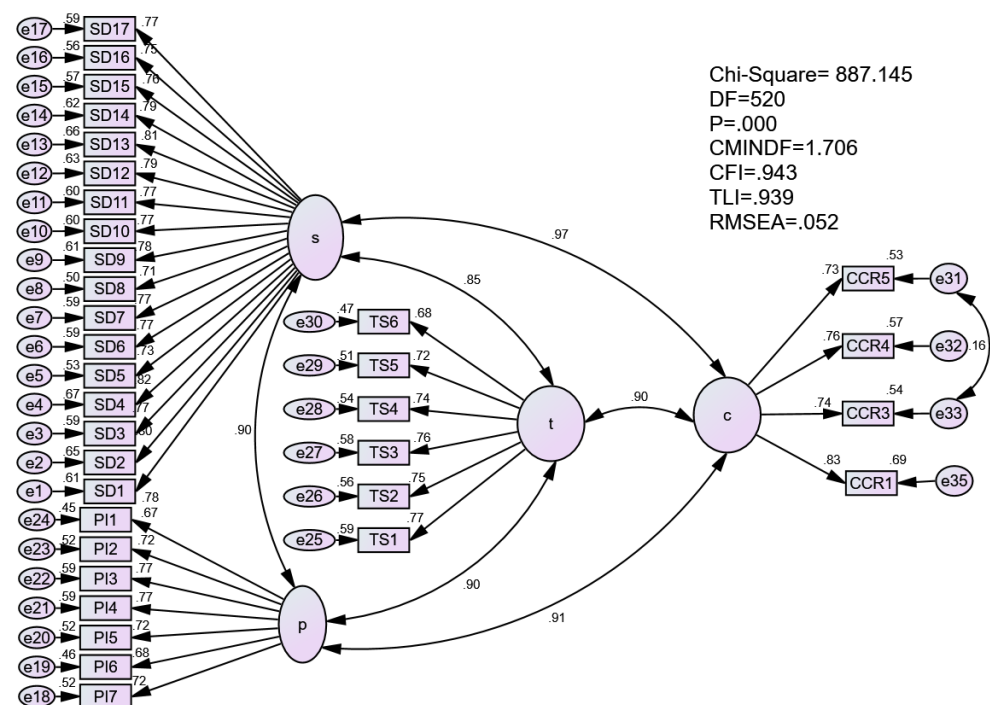

Figure 8. Full measurement model.

3.4. Reliability of Constructs and Convergent Validity

Convergent Validity (CV) signifies the extent to which one indicator is positively correlated to other indicators designed to evaluate the same construct [67]. Consideration of two criteria and confirmation that the two benchmarks are fulfilled is mandatory to satisfy convergent validity. The first criterion is the consideration of the loadings of all indicators which should be statistically significant with a value equal to 0.5 or greater than 0.5 [67]. The second criterion is that the extracted average variance (AVE) must be at least 0.5 [69]. Table 5 indicates the final measurement model with its standardized factor loadings. All the standardized factor loadings were greater than 0.7, which justifies that the first criteria of convergent validity. Furthermore, all of the z-score crucial ratios fell outside the acceptance range (−1.96 to 1.96), which further supports the rejection of the null hypothesis that the test's results were statistically significant from the null hypothesis and had p-values of 0.001. Additionally shown in Table 5 are the estimated values for each factor's average variance explained (AVE) and composite reliability (CR) estimates. Every AVE factor larger than 0.5 and its composite reliability (CR) were both higher than 0.7. Convergent validity is confirmed by each of the specific requirements listed above.

Table 5. Standardized Factor Loadings, Composite Reliability, and Variance Extracted for each factor.

Variable	Items	Loadings	S.E.	C.R.	p-Value	CR	AVE
Self-Determination	SD1	0.781				0.962	0.598
	SD2	0.803	0.061	14.595	***		
	SD3	0.767	0.067	13.753	***		
	SD4	0.816	0.062	14.898	***		
	SD5	0.728	0.064	12.891	***		
	SD6	0.770	0.062	13.826	***		
	SD7	0.768	0.064	13.774	***		
	SD8	0.708	0.061	12.453	***		
	SD9	0.782	0.064	14.092	***		
	SD10	0.773	0.064	13.898	***		
	SD11	0.775	0.064	13.927	***		
	SD12	0.791	0.064	14.308	***		
	SD13	0.813	0.062	14.818	***		
	SD14	0.787	0.064	14.214	***		
	SD15	0.758	0.061	13.540	***		
	SD16	0.750	0.066	13.375	***		
	SD17	0.767	0.061	13.749	***		
Parental Involvement	PI7	0.719				0.884	0.521
	PI6	0.679	0.096	10.706	***		
	PI5	0.718	0.093	11.330	***		
	PI4	0.769	0.090	12.144	***		
	PI3	0.766	0.101	12.094	***		
	PI2	0.724	0.093	11.424	***		
	PI1	0.673	0.094	10.608	***		
Special Education Teachers' Support	TS1	0.766				0.876	0.542
	TS2	0.750	0.075	12.573	***		
	TS3	0.761	0.073	12.790	***		
	TS4	0.738	0.077	12.336	***		
	TS5	0.717	0.073	11.941	***		
	TS6	0.682	0.074	11.279	***		
College and Career Readiness	CCR5	0.729				0.849	0.585
	CCR4	0.756	0.083	12.320	***		
	CCR3	0.737	0.074	13.092	***		
	CCR1	0.833	0.093	13.665	***		

Note: CR, composite reliability; AVE, average variance explained; S.E., standard error; C.R., critical ratio; *** denotes p-value < 0.001.

Table 6 provides a summary of divergent validity. In the table, AVE factors are shown diagonally. The inter-factor correlations are listed below the table's diagonal, while the values of squared inter-factor correlation, also called shared variance, are listed above it. There were no inter-factor correlations above 0.8. The fact that each AVE element is higher than the squared sum of its correlations with all other factors, however, provides compelling evidence for divergent validity.

Table 6. AVE and SV Values for the Measurement Model.

Construct	CR	AVE	CCR	SD	PI	TS
CCR	0.849	0.585	0.765			
SD	0.962	0.598	0.970	0.773		
PI	0.884	0.521	0.907	0.901	0.722	
SETS	0.876	0.542	0.902	0.846	0.903	0.736

Note: (i) The average extracted variances (AVEs) for each construct are displayed diagonally; the correlation matrix is shown below the diagonal; the shared variance matrix is shown above the diagonal; and (ii) All AVEs were higher than the shared variances.

3.5. The Assessment of the Structural Model

3.5.1. Assessment of the Overall Fit of the Study

After validation, the measurement model was transformed into a hypothesised structural model by replacing correlations between dimensions with hypothesised causal paths. Only the exogenous constructs remain correlated in order to capture any covariance between dimensions [68]. On the collected data, a structural hypothesised model was estimated using the Analysis of Structures (AMOS version 26.0) and the maximum likelihood estimation (MLE). The model's outcomes were estimated using goodness of fit indices and parameter estimates that were reasonable. The indicators' squared multiple correlation (SMC) was then investigated. The results were thoroughly investigated by comparing the analysis's results to a set of recommended thresholds. With 520 degrees of freedom and p-value = 0.000, the Chi-square (2) value was 887.145. The RMSEA was also 0.052, which was less than 0.08. The CFI = 0.943 and TLI = 0.939 have already reached the suggested value of 0.90 (see Figure 9). As a result, the statistical results supported the assertion that the structural model fit the data by confirming the consistency of the data with the hypothesised model.
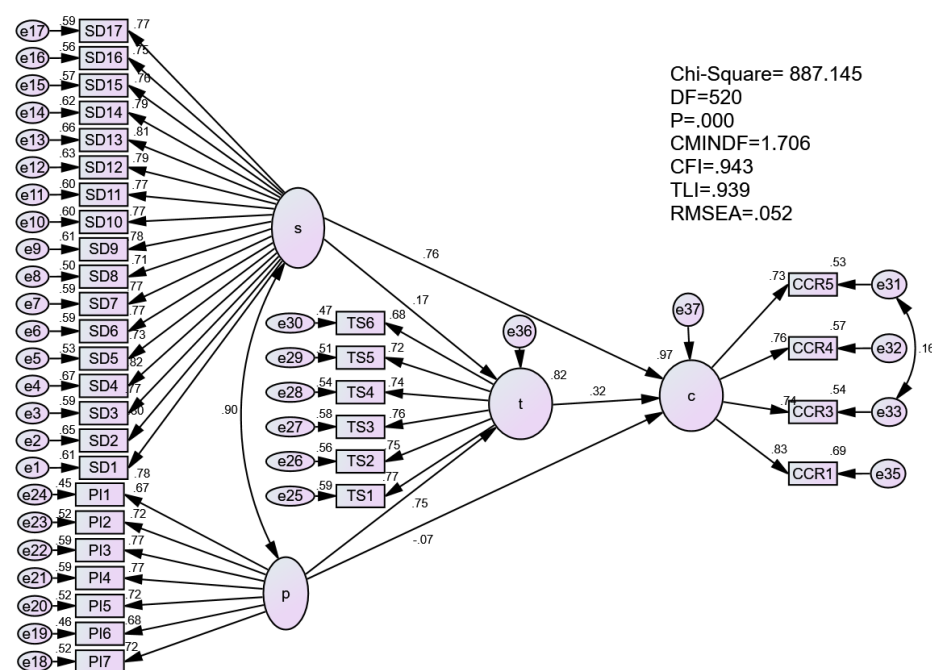

Figure 9. Full-Fledged Structural Model.

3.5.2. The Proportion of Variance Explained in the Model

The squared multiple correlation coefficients for the dimensions were examined to ascertain the percentage of variation in each latent variable that the model explained. Table 7 demonstrates that the proposed structural model accounts for a significant amount of the variance for each latent endogenous variable in the findings. The full model explained 97% of the variation in CCR for SLDs in secondary schools in Riyadh. SETS and CCR can also account for 82% of the variance. Details on the results predicted by the model are shown in Table 7.

Table 7. The Result of Analysis for the Hypothesized Model.

Endogenous Variables	Determinants	Hypothesized Model
		SMC
CCR	SD PI SETS	0.97 (97%)
SETS	SD PI	0.82 (82%)

Note: SMC (Squared Multiple Correlation); SD = Self-Determination; PI = Parental Involvement; SETS = Special Education Teachers' Support; CCR = College and Career Readiness.

3.5.3. Determining Relationships between Variables Based on Structural Model

H₁: *Students' self-determination is positively and significantly related to SLDs' college and career readiness.*

The results in Table 8 revealed that the path coefficient between students with learning disabilities' SD and their CCR was statistically significant ($\beta = 0.761$; $t > 1.96$; $p < 0.05$). This indicates that secondary students with learning disabilities' SD is positively and significantly related to their CCR. Therefore, the structural analysis of the model supported the study which postulated that students' SD is positively and significantly related to the SLDs' CCR.

Table 8. Direct Hypothesized testing of the Model.

	Structural Path	Standardized Estimates (>0.2)	C.R (>1.96)	*p*-Value	Decision Based on the Test of Significance (>1.96)
H₁	SD → CCR	0.761	7.063	***	supported
H₂	PI → CCR	−0.067	−0.467	0.641	not supported
H₃	SETS → CCR	0.318	2.833	0.005	supported
H₄	SD → SETS	0.171	1.398	0.162	not supported
H₅	PI → SETS	0.749	5.426	***	supported

Note: SD = Self-Determination; PI = Parental Involvement; SETS = Special Education Teachers' Support; CCR = College and Career Readiness. *** *p*-value less than 0.05.

H₂: *Parental involvement is positively and significantly related to SLDs' college and career readiness.*

The results in Table 8 revealed that the path coefficient between PI and SLDs' college and career readiness was NOT statistically significant ($\beta = -0.067$; $t < 1.96$; $p > 0.05$). This indicates PI is not positively and not significantly related to the CCR. For that reason, the structural analysis of the model does not support hypothesis two of the study, which postulated that PI is positively and significantly related to the SLDs' college and career readiness.

H₃: *Special education teachers' support is positively and significantly related to the SLDs' college and career readiness.*

The results in Table 8 revealed that the path coefficient between SETS and SLDs' college and career readiness was statistically significant ($\beta = 0.318$; t > 1.96; $p < 0.05$). This indicates SETS is positively and significantly related to the SLDs' college and career readiness. For that reason, the structural analysis of the model supported hypothesis three of the study, which postulated that SETS is positively and significantly related to the SLDs' college and career readiness.

H$_4$: *Students' self-determination is positively and significantly related to the special education teachers' support.*

The results in Table 8 revealed that the path coefficient between Students' self-determination and the special education teachers' support was NOT statistically significant ($\beta = 0.171$; t < 1.96; $p > 0.05$). This means that students' self-determination is NOT significantly related to the special education teachers' support among SLDs. For that reason, the structural analysis of the model DOES NOT support hypothesis four of the study, which postulated that students' self-determination is positively and significantly related to the special education teachers' support.

H$_5$: *Parental involvement is positively and significantly related to the special education teachers' support.*

The results in Table 8 revealed that the path coefficient between parental involvement and special education teachers' support was statistically significant ($\beta = 0.749$; t > 1.96; $p < 0.05$). This means that parental involvement is positively and significantly related to the special education teachers' support among SLDs. For that reason, the structural analysis of the model supported hypothesis five of the study, which postulated that parental involvement is positively and significantly related to the special education teachers' support.

H$_6$: *There is a mediating effect of SETS in the relationship between students' self-determination and students' CCR among secondary SLDs.*

H$_7$: *There is a mediating effect of SETS in the relationship between parental involvement and students' readiness for college and career among secondary SLDs.*

The significance test of mediation among latent variables was done using a bootstrapping method based on methodological recommendations to answer the fifth research question, which is in line with hypothesis six, SETS mediates the relationship between SD and CCR among SLDs in secondary schools in Riyadh, and hypothesis seven, SETS mediates the relationship between PI and CCR among secondary SLDs in Riyadh. In this regard, a bias-corrected bootstrap technique was employed using 1000 bootstrap samples and confidence intervals of 95%.

Results of the bootstrapping process are displayed in Table 9. These results suggest that one out of the two mediating routes was found to be statistically significant at a level lower than 0.01. According to hypothesis H_7, this shows that SETS has a mediating role in the relationship between PI and the endogenous variable (CCR) for SLDs in Riyadh secondary schools. However, there is no mediating effect of SETS in the relationship between students' SD and the endogenous variable (CCR) for SLDs in Riyadh secondary school in accordance with hypothesis H_6. Hence, it can be concluded that hypothesis seven was supported while hypothesis six was not supported.

Table 9. Bootstrap Results: Standardized Indirect Effect.

	Path/Effect		SE	95% Interval of Confidence		*p*-Value	Decision
				Lower	Upper		
H$_6$	SD → SETS → CCR	0.115 **	0.032	0.049	0.218	0.013	Not Supported
H$_7$	PI → SETS → CCR	0.910 **	0.094	0.081	0.390	0.001 *	Supported

Note: SD = Self-Determination; PI = Parental Involvement; SETS = Special Education Teachers' Support; CCR = College and Career Readiness. (*) Statistically Significant; (**) Practically Important.

The next step was to investigate the moderation effect of the SLDs' gender after looking at the path relationship using the main model for both the direct and indirect hypotheses. There are a number of techniques that may be used to assess the moderation effect within the structural model; two of them are interaction effect testing and multiple-group analysis (MGA) examination. In order to investigate the moderating impact, this study used multi-group analysis with AMOS version 26. The gender-based SLDs moderation effect was divided into two groups, including male and female SLDs.

H$_8$: *Students' gender moderates the relationship between self-determination (SD) and college and career readiness (CCR) among secondary school SLDs enrolled in special education programmes in Riyadh.*

Through a concurrent study of the SLDs' male ($n = 66$) and female ($n = 197$) groups, the gender invariance of SLDs was examined. The path coefficient (SD → CCR) was not constrained in the first study, resulting in a baseline Chi-square (2) value. The path coefficient (SD → CCR) was required to be equal across both status groups for the subsequent study. The findings show that at $p < 0.01$, the χ^2 value (7.245) was greater than the χ^2 critical value (5.99). These findings indicate that the expected association between these two categories of gender had a moderating effect, according to chi-square tests for differences (males and females of SLDs). As a result, the association between SLDs' self-determination and their CCR was moderated by their gender. In this aspect, the female SLDs' path coefficient was higher than the male SLDs' (0.99 and 0.93, respectively). Therefore, among female SLDs at secondary schools in Riyadh, the influence of SLDs' self-determination on their CCR is stronger. As a result, hypothesis (H$_8$) was approved (Table 10).

Table 10. Structural Invariance Analysis of Student's Gender.

H	Path	Mode	Chi-Squared	df	Critical Value	Chi-Squared Change	*p*-Value	Result
H$_8$	SD → CCR	Unconstrained	699.831	374	7.24	5.99	0.027	S
		Constrained	707.076	376				

Note: SD = Self-Determination; CCR = College and Career Readiness. $p < 0.05$, S = Significant.

4. Discussion

The purpose of the current study was to investigate the relationship between student's SD, PI, SETS, and CCR, and level of students' SD, PI, SETS, and CCR for SLDs among secondary school students with learning disabilities in Riyadh, Kingdom of Saudi Arabia.

4.1. The Levels of Students' SD, PI, SETS, and CCR for SLDs Enrolled in Special Education Programmes in Riyadh Secondary Schools

First, the study revealed that SLDs and special education teachers have a high level of SD regarding their perception compared to SLDs' parents. In the same way, SLDs and special education teachers have higher level of SD concerning special education teachers support compared to SLDs parents. This may be ascribed by previous research that higher levels of SD have been linked to a wide array of positive school and adult outcomes, including improved academic and functional goal attainment [13]. The results also showed that special education teachers have lower level compared to SLDs and their parents regarding SLDs' CCR. This is due to some schools not accepting the idea that SLDs parents are schools' partners in ensuring the child's educational progress. Other reasons for non-parental involvement include lack of practical skills related to learning disabilities and economic problems that prevent the parent from supporting the student effectively [6,10,70].

On the other hand, when gender was analyzed among the four main variables of the study, male SLDs showed a higher level of SD, IP, SETS, and in CCR across gender of SLDs than the female SLDs. These results are in contrast to [71,72] who indicated that female SLDs showed more willingness to work and study than males. This indicates that male students in KSA schools outperformed females SLDs in CCR at the university level due

to educational experiences, support services including SETS and PI. Furthermore, results revealed that students' SD is positively and significantly related to the SLD's college and career readiness. However, the results indicate PI is not positively or significantly related to CCR. Moreover, the results indicate SETS is positively and significantly related to the SLD's CCR. This is in accordance with past studies [73,74] which claimed that SETS is one of the several factors which contribute to improving SLDs in secondary schools.

4.2. The Differences in the Levels of Students' SD, PI, SETS, and CCR for SLDs in Riyadh Secondary Schools with Respect to Gender

Moreover, the results revealed that the path coefficient between students' self-determination and the special education teachers' support was NOT statistically significant. However, parental involvement and special education teachers' support was statistically significant. As claimed by [32], parents' knowledge of their children's capabilities and needs in special education programmes increases the effectiveness of the transition services, hence, developing the skills of SLDs in secondary schools. As indicated above, some of the factors include the parents' knowledge of their children's abilities and needs, their knowledge of the transition services, and their duties towards the programme. Moreover, the results indicated that one of the two mediating paths was statistically significant at a level lower than 0.01. This indicates a mediating effect of SETS in the relationship between parental involvement and the endogenous variable in preparation for college or career for students with learning disabilities in Riyadh. In addition, students' gender moderated the relationship between students' self-determination and their readiness for college and careers. These results agree with previous literature [70,75], which claimed that SLDs in secondary schools lack SD skills, which affects their level of self-confidence and their level of independence and self-reliance. Moreover, due to the weak special education programmes provided to SLDs, they show poor possession of CCR skill despite the importance of that skill beyond the secondary school stage [9,39]. Morningstar [9] indicated that SLDs in secondary schools lack CCR, confidence in their choices, problem-solving, and decision-making skills, and to a greater extent, they suffer low levels of self-awareness. These shortcomings accentuate the need for educational interventions to help SLDs develop critical SD skills. This finding suggests the demand for professional training and workshops to increase and expand SLDs parents understanding and practices toward their children with learning disabilities.

5. Conclusions

The significance of college and career readiness (CCR) refers to understanding human motivation that requires consideration of innate psychological needs for competence, autonomy, and relatedness. SLDs' CCR is targeted as the motive force that ensures they become integrated members of society. CCR may not emerge naturally for some students, such as SLDs. Accordingly, special education teachers and SLDs parents represent an opportunity to enhance CCR among SLDs. Therefore, results indicate a mediating effect of special education teachers support (SETS) in the relationship between PI and the endogenous variable (CCR) among SLDs in secondary school in Riyadh, Kingdom of Saudi Arabia.

6. Limitations

The current study, like any other, has some limitations that must be addressed. Although the number of targeted SLDs, their parents, and special education teachers was sufficient, volunteer bias may have affected the generalizable results. Second, both teachers and parents may respond differently because they believe their responses will be used to evaluate them, or they respond in a socially desirable manner. As a result, we encourage additional research in various geographical areas. Furthermore, this study is limited to the primary goal of investigating the relationship between students' SD, PI, SETS, and CCR in Riyadh, Kingdom of Saudi Arabia. The study is also limited to the knowledge level and SD, PI, SETS, and CCR without addressing the underlying challenges.

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