

## A re-engagement model to overcome the psychological distress of students

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### ABSTRACT

COVID-19 lockdowns and lack of social interaction increased academic disengagement among students in India. This study aims to identify the student engagement pitfalls and the prevalent psychological distress in higher education institutions (HEIs) in India prior to the pandemic and during the same. An exploratory research design is adopted by executing a purposive sampling technique. Researchers collected data from undergraduate students of the top five universities, verified 600 consistent responses, and tested the hypothesis using relevant research tools. Results display that psychological distress (PD) is inversely correlated to student engagement (SE) and negatively impacts it. Researchers introduced a novel re-engagement model called "CAIS", which is the combination of four variables, creativity, physical activity (PA), internship, service learning (SL), and tested their relationship with PD and SE. Each variable under CAIS shows an inverse correlation with PD and positively impacts SE. This study suggests to include "CAIS" in the curriculum to improve the productivity of students and reduce their stress levels. This investigation is the first of its kind to explore the connection between CAIS, SE, and PD in Indian HEIs. The results contribute to the stakeholders in education to re-engage the students in an innovative pattern during post-pandemic times.

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## 1. INTRODUCTION

COVID-19 has catapulted mayhem across the globe causing economic and social disruption. The historic lockdowns have robbed the animated campus spaces of millions of students globally [1]. Not to jeopardize academic activities, the countries rapidly shifted to e-learning mode [2], and India also followed suit. Swift technological advancements have made e-learning much more accessible and fascinating with various lectures, slides, and audio-video presentations [3], [4]. The Government of India (GoI) tried e-learning as a large-scale social experiment. It launched tools with online depositories, e-learning materials, educational TV, and radio programs to reach learners [5]. However, the virtual learning system has exacerbated the social and economic disparities globally as a repercussion of the pandemic [6].

India stands far from justification for providing seamless online education owing to the digital divide [4]. Higher education institutions (HEIs) in India use eclectic digital platforms such as Google Meet, Microsoft Teams, Zoom, but erratic power and sporadic internet connections make learning problematic for students [4]–[7]. Excessive apprehensions torment the student community allied to their academics, career,

and overall survival post-pandemic. In further sections, this paper discusses the rampant distress among the students, structural flaws in HEIs, and how the social and education system in India aggravates the overall agony of the student fraternity.

Scholars have done a plethora of studies on psychological distress among students and prevalent pitfalls in Indian HEIs. Anxiety, depression, fear, anger, psychosomatic complaints, and suicidal propensity is evident among Indian students [8], [9]. India is a collectivistic society that emphasizes interdependence and social cohesion. Indian family plays an enormous role in nurturing children, influencing their education, career, and overall survival [10]. Hence, in the Indian context, higher education students are expected to score high grades and obtain a promising profession to support their families [8]. Students face constant pressure from parents, teachers, and society and are often compared to their peers and siblings [1]. In India, exams are the ultimate yardstick to measure students and are judged based on their grades. A significant segment of children in India is traumatized due to fear of failure, performance anxiety, negative appraisals, and social stigma [8]–[11].

Literature establishes that the stress level, evident even in pre-pandemic epochs, further soared high due to COVID-19. Disrupted routine, lack of systematic and structured pattern of a campus environment, absence of curricular and extracurricular activities, monotonous lifestyle, and lack of social interactions are a few of the myriad reasons for the mental stress of students [1]–[9]. The challenges faced by students during this pandemic are, emotional challenges (academic stress, exam anxiety, lack of motivation); financial challenges (job loss for parents, loan burden); career challenges (dearth of internships and jobs, stiff competition, tumult in country's economy); social challenges (isolation, lack of interaction, physical distancing measures); physical and mental health challenges (contracting virus and health issues, fear of spreading to family, suffering, and death of loved ones). It is opined that these hassles would thwack their mental well-being and may also continue to haunt them for many years in their future life [8].

Indian higher education system has received wide criticism for its structural flaws. Validity in equity, infrastructure, quality, research, and innovation [12] are a few of the multitudinous glitches faced by HEIs in India. University Grants Commission (UGC) has documented the issues related to expansion, inclusiveness, and quality while highlighting the importance of investment in higher education [13]. Students' learning is affected, and a lack of interest is generated due to the stagnating models of teaching and practice [14]. HEIs lack veritable student engagement activities due to their inconsistent delivery and approach. SE is an understudied and ignored concept in the Indian milieu [15]. According to a survey on teachers, it is noted that “only 55% of Indian students are actively engaged in learning”, 61% at the school level, which drops down to 50% in higher education [16]. Even prior to the pandemic, studies suggested that “experiential learning” and “multidisciplinary approach” are indispensable in Indian HEIs [12]–[17].

COVID-19 has not only multiplied the prior stressors but widened the relationship between student-teacher and created a vacuum in the minds of the students. The post-pandemic goals are to bridge the gulf between teacher and student, re-engage the students productively, and instill enthusiasm and self-confidence in them. Hence, a re-engagement model that strategically aligns with the ideology of HEIs and matches the expectations of students' communities is imperative to reduce their burnout. Subsequently recognizing this need, our paper proposes a novel re-engagement model suitable for post-pandemic times to augment student well-being in Indian HEIs. This paper further exhibits the evidence from the literature that student engagement is the hallmark of productivity and lack of engagement triggers anxiety and concern.

## 2. COMPREHENSIVE THEORETICAL BASIS

Studies establish the relationship between student engagement and psychological distress. Student engagement (SE) is an extensively recognized and researched concept in pedagogics and has an imperative influence on higher education. There are three SE factors “emotional, behavioral, and cognitive” that directly influence their accomplishments and success [18], [19]. Emotional engagement emphasizes the students' positive and negative responses toward academics, teachers, and peers [20]. Cognitive engagement encompasses the students' effort to learn, develop strategies, and comprehend complex ideas [20]. Behavioral engagement accentuates the students' participation in curricular, extracurricular, or social activities, which is critical for positive accomplishments and for eliminating the chances of dropouts [18]–[20]. Researchers added a fourth factor, agentic engagement, indicating the students' interest in enquiring, clarifying, informing, and active participation in the learning process [21]. The unification of the four components accentuates overall student engagement.

The holistic outcomes of SE include academic accomplishments, transformative studying, and personal and social development [18]–[22]. Student engagement also boosts a sense of belonging, pride, inclusiveness, and psychological well-being of students by reducing academic burnout [20], [22]–[24]. The study done among university students in Spain proposes that engagement is a “positive, fulfilling, work-

related state of mind” and is an antipode to burnout [25]. Research at a university in Cyprus unveiled an inverse correlation between burnout and student engagement [26]. An investigation done among university students in Turkey affirms that SE predicts academic achievement positively, while burnout is predicted negatively [27]. Disengagement triggers anxiety, depression, delinquency, substance abuse, and disaffection among students [28]–[30]. Studies also prove that if students have high distress, their engagement will get negatively impacted [23]–[31]. COVID-19 has triggered severe stress due to the isolation during lockdowns, affecting their engagement level. Hence, this paper further discusses a novel re-engagement model called “CAIS,” suitable for the post-pandemic period.

CAIS, a re-engagement model, is a combination of four student engagement concepts, creativity, physical activity (PA), internship, and service learning (SL). CAIS as a single concept is novel and lacks prior studies. It is partially adapted from an internationally renowned student engagement concept called creativity, activity, service. Creativity, activity, service (CAS) is an internationally acclaimed experiential learning program espoused by the prestigious International Baccalaureate (IB) headquartered in Geneva, Switzerland [32], [33]. The IB organization has designed CAS for high school students to burgeon their leadership skills and make them more “civic-minded” [34].

CAS is a compulsory element of the IB diploma program, which boosts the students between the age group 16-19 to prosper “physically, intellectually, emotionally, and ethically” [35]. The “creativity” element of CAS includes performing art forms, making art designs, and organizing or communicating at events. The “activity” component emphasizes the importance of sports, gym, trekking, and other exercises that can complement academics. The “service” concept highlights unpaid volunteering, charity, or other community services [35]. Research about this program has been scant to date. However, available studies affirm that CAS transforms students into “global citizens” [32], [33]. In this paper, CAS has been modified to CAIS by including another variable, “internship,” which could be a suitable re-engagement model for HEIs in India. Studies related to each variable’s benefit under CAIS are discussed in detail hereafter.

Creativity in education has received immense accord among the higher education community, and there is a profusion of literature citing the importance of nurturing creativity among students in HEIs [36]–[39]. A positive relationship between teachers’ leadership and students’ creativity was established through a study in HEIs [40]. Researchers, through their examination at a university in Bosnia, cited the importance of “additional effort” in amplifying creativity in HEIs [36]. Another study conducted among HEIs in Moscow recommends the implementation of creativity in institutions on three levels: personal, procedural, and environmental [37]. Creativity in higher education gives students a sense of freedom to work in “new and interesting” styles [41]. It also optimizes students’ satisfaction, resilience, self-esteem, and well-being [42], [43]. Studies have established that creativity diminishes stress and augments student engagement [44], [45]. The literature underscores the need to incorporate creativity in higher education.

PA is described as “any bodily movement produced by skeletal muscles that result in energy expenditure” [46]. It includes play, work, sports, exercise, or other household chores [47]. Involving in any PA enhances an individual’s “physical, psychological and emotional health” [47], [48]. It also reduces the risk of non-communicable health issues and positively impacts the quality of life [48]. PA is a well-researched topic, and studies stipulate its relevance in higher education [47]. Investigations from various universities denote the positive connotation between PA and psychological well-being as it holistically improves the quality of life [47]–[49]. It also reduces stress and enhances student engagement [50], [51]. PA improves physical fitness and catalyzes academic success [52]. Physical fitness among university students is on an average scale, and it is crucial to spread awareness regarding their involvement in physical activities [53]. From the studies, it can be understood that the inclusion of PA in HEIs is indispensable.

Internship is conceptualized in numerous ways by authors over a period, and enunciating with a precise definition will be arduous and erroneous. Literature expatiates that internship is career-oriented learning that imparts skills and proficiency to bridge the gulf between the classroom and the real world [54]–[56]. The concept has gained enormous attention among the higher education fraternity as it could be a win-win situation for “students, employers, and schools” [54]. Internships offer “practical experience,” and students gain a comprehensive cognizance of applying theoretical knowledge to handle practical issues [57]. Researchers observed that internships equip students for employment and provide knowledge on customer service, time management, team spirit, and meeting deadlines [58]. Internship increases job prospects and provides a positive and comfortable work environment, as per a study conducted in an agricultural college in the Philippines [56]. Studies exhibit that internship programs impact not only the “professional and personal growth” of students [59] but reduce their stress levels [60]. It is also proved that experience gained through an internship program improves competency [55] and enhances student engagement [61]. Prior studies highlight the importance of including an internship in the curriculum of HEIs.

Service learning is a combination of “teaching and learning strategy”, which integrates community service and education [62]. Welfare activities envisioned to assist and support specific groups of people in society have gained prominence in education. Higher education must aim to develop “civic leaders and

productive citizens” [63]. SL in higher education is a novel method to enhance learning through various community services resulting in “personal development and civic engagement” and also fosters social and emotional skills [64], [65]. A study conducted at a German University highlights the importance of a “didactic approach” to service learning among students that will “promote social responsibility and citizenship skills” [66]. SL is impactful, profoundly engaging, and transformative didactic practice and academic alignment [67]. SL instills numerous qualities such as a sense of citizenship, responsibility, cooperation, empathy, tolerance, social awareness, and cultural knowledge that provides a practical learning experience [62]–[67]. Studies conducted among students establish that SL augments student engagement and caters to their mental health requirements [65], [68], [69]. It is also proved that SL provides a “unique experience,” as per the research done in Central and Eastern European universities [63]. These studies indicate the necessity of the inclusion of service learning in education.

While literature evidence ensures the benefits of the variables (creativity, physical activity, internship, and service learning), this study intends to amalgamate as “CAIS” and examine the possibility of introducing the same in HEIs as a novel re-engagement model. Therefore, this paper first studies the relationship between the variables psychological distress (PD) and SE, then further examines the relationship of each variable under CAIS with PD and SE. It also investigates how variables under CAIS impact PD and SE. The hypothesis was developed based on the literature: i) PD has a negative impact on SE; ii) Creativity, PA, internship, and SL have a significant positive correlation with SE; iii) Creativity, PA, internship, and SL have a significant inverse correlation with PD; iv) Creativity, PA, internship, and SL have a significant positive impact on SE; and v) Creativity, PA, internship, and SL have a significant negative impact on PD.

### 3. RESEARCH METHOD

To identify the correlation and impact of CAIS with SE and PD, correlation analysis and structural equation modelling (SEM) was conducted. A confirmatory factor analysis (CFA) was conducted to identify the validity and reliability of the measurement model and the relations between the observed items and the latent variables. The structural model tests the significance of the path coefficients and the standard errors.

A pilot study was conducted with 70 students from five universities. After making a few wording corrections for better understanding, questionnaires (N=1,350) were distributed to the undergraduate students of the top five universities as per NAAC rating from five regions (north, south, east, west, center) in India. A total of 711 (55.11%) responses were received using purposive sampling methods, and after eliminating the inconsistent ones, 600 responses were taken for further analysis. IBM AMOS and IBM SPSS statistics 23 were used to analyze the data. The data was collected through e-mail by administering a 54-item scale, and Cronbach’s alpha reliability (0.754) was satisfactory.

Instruments for the study are sourced from pre-validated scales and are modified to suit this research. Hence, validity and reliability are further tested and ensured. A self-administered questionnaire consisting of six variables was used for the data collection. SE was measured by a 15-item instrument from university student engagement inventory (USEI) [20], Cronbach’s alpha 0.722; PD was measured using a 16-item scale from MBI-SSi [70], and COVID-19 Stress Scales (CSS) [71], Cronbach’s alpha 0.765; Creativity was measured using a 6-item scale from creativity styles questionnaire [72], Cronbach’s alpha 0.732; PA was measured using a 6-item scale from international physical activity questionnaire [46], Cronbach’s alpha 0.753. Internship was measured by a 6-item scale from internship related learning outcome scale [73], Cronbach’s alpha 0.806. SL was measured by a 5-item scale from the community service attitudes scale [64], Cronbach’s alpha 0.746. A five-point Likert scale (1=strongly disagree to 5=strongly agree) is used to assess each item in the SE, creativity, PA, internship, and SL; and reversely coded for variable PD. The convergent validity and discriminant validity of the instrument is also tested.

### 4. RESULTS AND DISCUSSION

The descriptive statistics and reliability tests are presented in Table 1. Reliability is the extent to which measures are free from random error and yield a consistent result. The Cronbach’s alpha reliabilities for each scale obtained a satisfactory result ranging from 0.722 to 0.806. The value for Cronbach’s alpha is higher than the proposed value of 0.70, which indicates that the items are reliable to proceed with further analysis. CFA has been administered to identify the unidimensionality of the measurement model.

The loading for each factor shows a significant contribution to the constructs as shown in Table 2. The factor loadings of each dimension show a value higher than 0.7, which assures the content validity of the variable. The critical ratio statistics of standardized factor loading of the constructs in every factor discloses the convergent validity. All factors’ reliability value shows a higher value than the suggested frontier.

Table 1. Descriptive statistics

	No. of items	Mean	Std. deviation	Alpha
SE	15	4.0630	.70752	.722
PD	16	1.8334	.59416	.765
Creativity	6	4.0997	.74137	.732
PA	6	4.0945	.67588	.753
Internship	6	4.1074	.67644	.806
SL	5	4.1078	.65273	.746

Table 2. Results of CFA

Construct	Item code	Factor estimate	Error variance	Critical ratio	P	R <sup>2</sup>
SE	EE1	0.869	0.043	19.70	***	0.72
	EE2	0.780	0.040	21.91	***	0.62
	EE3	0.740	0.042	25.88	***	0.65
	EE4	0.887	0.042	20.92	***	0.75
	EE5	0.912	0.044	24.46	***	0.81
	EE6	0.623	0.042	24.49	***	0.57
	EE7	0.953	0.043	21.74	***	0.88
	EE8	0.846	0.041	25.65	***	0.60
	EE9	0.797	0.104	16.50	***	0.70
	EE10	0.848	0.080	16.12	***	0.70
	EE11	0.867	0.042	23.16	***	0.73
	EE12	0.843	0.035	24.76	***	0.70
	EE13	0.885	0.041	20.61	***	0.77
	EE14	0.747	0.038	28.10	***	0.55
	EE15	0.839	0.038	25.63	***	0.67
PD	DI1	0.804	0.044	24.09	***	0.62
	DI2	0.894	0.043	24.12	***	0.78
	DI3	0.839	0.039	19.64	***	0.72
	DI4	0.750	0.036	21.85	***	0.61
	DI5	0.711	0.038	25.82	***	0.65
	DI6	0.857	0.038	20.86	***	0.75
	DI7	0.883	0.040	24.40	***	0.80
	DI8	0.794	0.038	24.43	***	0.56
	DI9	0.924	0.039	21.68	***	0.87
	DI10	0.817	0.037	25.59	***	0.60
	DI11	0.768	0.100	16.44	***	0.69
	DI12	0.818	0.076	16.06	***	0.69
	DI13	0.837	0.038	23.10	***	0.72
	DI14	0.813	0.031	24.70	***	0.69
	DI15	0.855	0.037	20.55	***	0.76
	DI16	0.717	0.034	28.04	***	0.54
Creativity	C1	0.809	0.034	25.57	***	0.66
	C2	0.774	0.040	24.03	***	0.61
	C3	0.865	0.039	24.06	***	0.77
	C4	0.645	0.047	24.42	***	0.56
	C5	0.976	0.048	21.67	***	0.87
	C6	0.868	0.046	25.58	***	0.60
PA	PA1	0.819	0.109	16.43	***	0.69
	PA2	0.870	0.085	16.05	***	0.69
	PA3	0.889	0.047	23.09	***	0.72
	PA4	0.865	0.040	24.69	***	0.69
	PA5	0.907	0.046	20.54	***	0.76
	PA6	0.769	0.043	28.03	***	0.57
Internship	I1	0.861	0.043	25.56	***	0.66
	I2	0.826	0.049	24.02	***	0.62
	I3	0.917	0.048	24.05	***	0.78
	I4	0.862	0.044	19.56	***	0.71
	I5	0.772	0.041	21.77	***	0.61
	I6	0.733	0.043	25.74	***	0.64
SL	SL1	0.879	0.043	20.78	***	0.74
	SL2	0.905	0.045	24.32	***	0.80
	SL3	0.616	0.043	24.35	***	0.56
	SL4	0.946	0.044	21.60	***	0.87
	SL5	0.839	0.042	25.51	***	0.59

\*\*\*Significant at 1% level

According to Table 3, the average variance extracted and composite reliability value is higher than the minimum frontier suggested. It provides a clear idea about the construct validity. The Cronbach alpha value measures the reliability, which shows that all values are higher than the recommended minimum frontier. The analysis helps to understand the reliability and validity, data consistency, and adequacy.

Table 4 explains the measurement model’s goodness of fit indices and is clearly within the threshold value. The goodness of fit index (GFI), adjusted GFI (AGFI), normed fit index (NFI), incremental fit index (IFI), and CFI values are above desired limits, such as .931, .912, .951, .962, and .962. The root mean square error of approximation (RMSEA) and root mean square residual (RMR) values have not exceeded the threshold value of 0.05, and the values are 0.033 and 0.045, respectively. The Chi-square value has no significance, and the normed Chi-square value is 2.21 which is within the desired limit of 3. The analysis suggests that the data fit for the proposed conceptual model is good and can be taken for further study.

Table 3. AVE and squared correlation

Constructs	No. of items	Squared correlation	AVE
SE	15	0.0472-0.1241	0.601
PD	16	0.0551-0.0994	0.652
Creativity	6	0.0145-0.0674	0.656
PA	6	0.0592-0.0987	0.644
Internship	6	0.0264-0.0791	0.636
SL	5	0.00311-0.0598	0.678

Table 4. Fitness indices of CFA

	Particulars	Result
Chi-square	Chi-square value	0.131
	Normed Chi-square	2.21
	GFI	.931
Fit indices	AGFI	.912
	NFI	.951
	IFI	.962
	CFI	.962
Alternative indices	RMSEA	.033
	RMR	.045

**4.1. Correlation**

A correlation analysis is done to identify the relationship between creativity, internship, PA, and SL with SE and PD. As presented in Table 5, it is clear that there is a significant positive relationship between creativity, internship, PA, and SL with SE and a significant negative relationship between creativity, internship, PA, and SL with PD. SL shows a higher correlation with SE, followed by PA. SL and PA show a higher negative correlation with PD. Hence, hypotheses 2 and 3 are accepted.

Table 5. Correlations

		PD	SE	PA	Internship	Creativity	SL
PD	Pearson Correlation	1	-.947**	-.860**	-.847**	-.848**	-.882**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	600	600	600	600	600	600
SE	Pearson Correlation	-.947**	1	.820**	.800**	.799**	.825**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	600	600	600	600	600	600
PA	Pearson Correlation	-.860**	.820**	1	.872**	.845**	.939**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	600	600	600	600	600	600
Internship	Pearson Correlation	-.847**	.800**	.872**	1	.865**	.945**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	600	600	600	600	600	600
Creativity	Pearson Correlation	-.848**	.799**	.845**	.865**	1	.940**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	600	600	600	600	600	600
SL	Pearson Correlation	-.882**	.825**	.939**	.945**	.940**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	600	600	600	600	600	600

\*\* . Correlation is significant at the 0.01 level (2-tailed)

**4.2. Structural equation model**

SEM has been used to know the impact of creativity, internship, PA, and SL on SE and PD. The SEM path values as displayed in Figure 1 show that creativity, internship, PA, and SL have a significant positive impact on SE. PA (0.61) shows a higher influence on SE, followed by SL, creativity, and internship (0.55, 0.44, and 0.39), respectively. The GFI obtained is 0.918 as against the recommended value of above

0.90, Comparative CFI and Tucker Lewis index (TLI) are 0.931 and 0.902, respectively, as against the recommended level of above 0.90. RMSEA is 0.075 and is just above the recommended limit of 0.06. Hence, the model shows an overall acceptable fit as presented in Table 6.

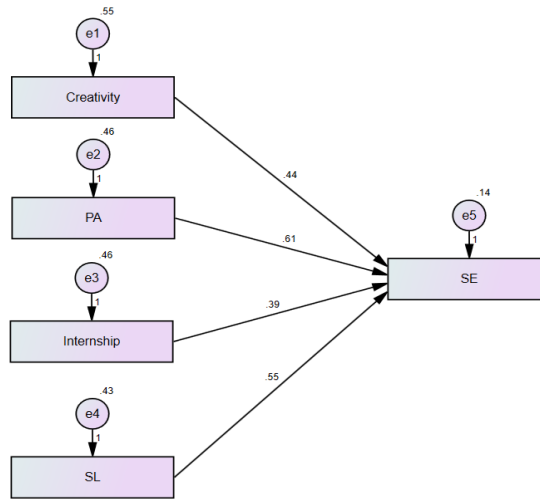


Figure 1. Path analysis of CAIS with SE

Table 6. Fit indices of CAIS with SE

Chi square	Df	Ratio	Standard estimates				
			P-Value	GFI	CFI	TLI	RMSEA
9.390	6	1.56	0.000	0.918	0.931	0.902	0.075

The SEM path values as depicted in Figure 2 show that creativity, internship, PA, and SL have a significant negative impact on PD. PA (-0.37) shows a higher inverse influence on SE, followed by creativity, SL, and internship (-0.28, -0.24 and -0.08), respectively. The GFI obtained is 0.935; RMSEA is 0.067; CFI and TLI are 0.959 and 0.917 as presented in Table 7. Hence, hypotheses 4 and 5 are accepted.

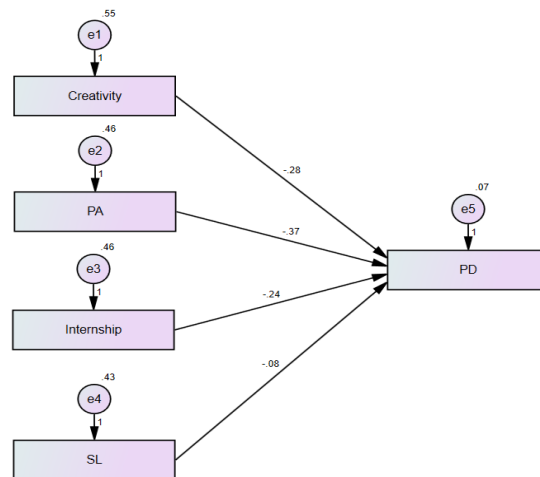


Figure 2. Path analysis of CAIS with PD

Table 7. Fit indices of CAIS with PD

Chi square	Df	Ratio	Standard estimates				
			P-Value	GFI	CFI	TLI	RMSEA
11.460	6	1.91	0.000	0.935	0.959	0.917	0.067

Figure 3 shows that the PD has a significant negative impact on SE (-0.54). Fitness indices exhibit a good fit for the model. Thus, hypothesis 1 is accepted. The findings contribute to the earlier studies, which established that psychological distress has a high negative impact on student engagement [23], [26]–[30]. The results of this paper also support the earlier findings, which established a positive correlation of variables creativity, physical activity, internship, and service-learning with student engagement and an inverse correlation with psychological distress. Congruent to the previous studies, the finding shows a positive impact of variables creativity, physical activity, internship, and service-learning on student engagement and a negative impact on psychological distress [44], [45], [60], [61], [68], [69].

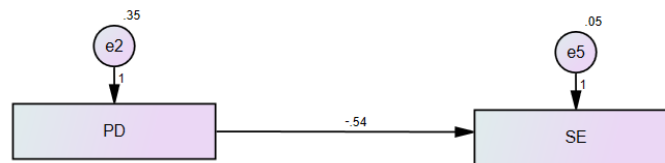


Figure 3. Path analysis of PD with SE

This paper takes cognizance of the issues faced by students during COVID-19 and highlights the importance of re-engaging them in post-pandemic times to reduce psychological distress. Even though student engagement activities like counseling, yoga, arts, sports, dance were already in place in Indian HEIs, the unprecedented and prolonged COVID-19 pandemic affected student engagement adversely [74]. At this juncture, a novel re-engagement model is crucial to keep the students motivated and allow them to perform without distraction and deviation. It should re-ignite the overall energy lost during the pandemic period. According to the literature, International Baccalaureate has incorporated CAS into its curriculum to accomplish students' physical, intellectual, emotional, and ethical development [35]. Along with CAS, we propose to include another variable “internship” and modify it as “CAIS” suitable for Indian HEIs. An internship will unite theoretical and practical learning [54], [55].

Results from this study affirm the need for a practical learning approach, and CAIS as a re-engagement model will diminish academic burnout and augment psychological well-being. It is imperative to restructure the pedagogies for the students to have enriching educational experiences. The experiential learning idea is mooted with the confidence that if implemented systematically in HEIs, it would enhance the students' knowledge and upheaves their employability. “CAIS,” as a re-engagement model, will bring vibrancy to pedagogies by igniting a creative mind, carving a healthy physique, offering real-world experience, and instilling civic-mindedness. The new National Education Policy by GoI emphasizes the need for shifting the focus from black-board teaching, rote learning, and examination to creative teaching and learning, critical and problem-solving outlook, and research-oriented innovative pedagogics [75]. Indian HEIs show no compulsion for student involvement in extracurricular activities, and internship is made mandatory only for a few academic programs [76]–[78]. While talented students participate in art, sport, or community activities, a significant portion of the student fraternity stays away from non-academic activities since there is no compulsion. Absence of engagement distracts and diverts their mind, leading to substance abuse, unethical social media activities, crimes, or other self-destructive actions [79]. Hence, this paper suggests that CAIS be made part of the academic curriculum as a mandatory program.

Students may be advised to attend stipulated hours of creative sessions like dance, music, drawing, painting, craft making, computer designing, clay modeling, candle making, or any such activities of their choice where the creative ideas ignite [80], [81]. Similarly, a few hours of physical activity should be obligatory where students involved in any activity of their choice, yoga, sports like football, badminton, swimming, or a few sessions in the gymnasium where their overall physical fitness is improved [82], [83]. HEIs should make a few hours of internship compulsory so that students will have to work for a minimum period in any small or big industry, which would convert their theoretical knowledge to real-world practice [84]. Finally, there should be a mechanism in HEIs to make service-learning mandatory where students can participate in community services and voluntary charity programs that will create civic sense and make them productive citizens [85], [86]. In the progress card or mark sheet, along with the marks for their theoretical subjects, marks for CAIS should also be mentioned, and the total of these two factors should be their aggregate marks or percentage while declaring their grades. This can be done in a specific ratio based on the policies and discretion of concerned HEIs or universities. This study purely focuses on understanding the relationship and impact of SE, PD, and the individual variables under CAIS. Since this is the first time such a unique model is proposed, further studies on the same topic after the implementation is essential.



The research limits its span to five universities, one from each region, and finds it difficult to generalize in a pan-India context. Future studies should include more universities from all the regions in India. This study limited its focus to undergraduate students, while there is a scope to include post-graduate students in the future. Another limitation of this study is that, since the concept “CAIS” is being studied for the first time, literature suggesting the benefit of the same as a single variable is unavailable for reference. Hence, this study has considered each component under CAIS as a separate variable for examination. Single research is insufficient to scrutinize all fasciae of this multifaceted construct CAIS. Further study is essential to reinforce our understanding of this subject. The results contribute to the earlier findings by confirming their relationship and impact on each other. In continuation, a further study after combining all the variables under “CAIS” as a single moderator between SE and PD is imperative to gain better perspectives on this subject. This study holds practical implications for all stakeholders in education to adopt a multidimensional approach in HEIs. Education in emergencies like COVID-19 requires a cyclical approach comprising three components, preparing, coping, and recovery [87].

## 5. CONCLUSION

COVID-19 created chaos in education by disengaging students worldwide. This research identifies the problems related to student engagement and how lack of engagement creates distress among students of Indian HEIs. Disengagement and distress were prevalent prior to COVID-19, which aggravated during the historic lockdowns. This paper also identifies the benefits and defects of online education. The efforts taken by stakeholders and individuals for online education should not be abandoned in the post-pandemic era. An avalanche of technological tools is available to make virtual learning more affordable and accessible. At the same time, students need not be deprived of the opportunity to socialize, share and showcase their talents, learn through experiments, and have fun moments of classroom education. Therefore, this paper proposes a novel re-engagement model called “CAIS”, an amalgamation of four popular student engagement concepts - creativity, physical activity, internship, and service learning. With the introduction of CAIS, we envisage holistic development where students can exhibit their creative talents, contribute to sports, gain through internships, and serve the community. The marks for formal theoretical studies and CAIS can be segregated on a specific ratio and be shown in the mark sheets and progress cards after ensuring a hundred percent participation. In culmination, this study proposes a restructuring of pedagogics with an amalgamation of online cum offline academics and the insertion of CAIS as a systematic engagement plan to amplify student well-being and curtail academic stress in Indian HEIs.

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