Evaluating Socio Psychological and Socio Economic Factors: Enhancing Teaching Quality and Efficiency through Facilitating Techniques and Environments

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This survey will be derived partly from a questionnaire based approach used by PISA (Program for International Students Assessment) : a program which "assesses the extent to which 15 year old students, near the end of their compulsory education, have acquired key knowledge and skills, which are essential for full participation in modern societies."(see OECD, 2018. "PISA 2015 Results in Focus"). The following points are highlighted in the publication:

- "The PISA 2015 survey focused on science, with reading, mathematics and collaborative problem solving as minor areas of assessment. PISA 2015 also included an assessment of young people's financial literacy, which was optional for countries and economies.
- Approximately 540 000 students completed the assessment in 2015, representing about 29 million 15-year-olds in the schools of the 72 participating countries and economies.
- Computer-based tests were used, with assessments lasting a total of two hours for each student.
- Test items were a mixture of multiple-choice questions and questions requiring students to construct their own responses. The items were organised in groups based on a passage setting out a real-life situation. About 810 minutes of test items for science, reading, mathematics and collaborative problem solving were covered, with different students

taking different combinations of test items.

- Students also answered a background questionnaire, which took 35 minutes to complete. The questionnaire sought information about the students themselves, their homes, and their school and learning experiences. School principals completed a questionnaire that covered the school system
and the learning environment. For additional information, some countries/economies decided to distribute a questionnaire
to teachers. It was the first time that this optional teacher questionnaire was offered to PISA-participating countries/ economies. In some countries/economies, optional questionnaires were distributed to parents, who were asked to provide information on their perceptions of involvement in their child's school, their support for learning in the home, and their child's career expectations, particularly in science."

"Countries could choose two other optional questionnaires for students: one asked students about their familiarity with and use of information and communication technologies; and the second sought information about students' education to date, including any interruptions in their schooling, and whether and how, they are preparing for a future career."

The 2019 Ofsted publication on "Educational Effectiveness, Research and Further Education and Skills", June 2019, No 190031 considers the following as important in consideration of themes in the evidence of educational effectiveness:

- The consideration of work based learning and classroom based learning: particularly, their sequencing ;

- The planning of appropriate methods of assessment;
- The consideration of learners' prior knowledge, experiences and skills when planning the curriculum;
- Understanding that different approaches may be required in different educational sectors;
- Teachers' roles as dual professionals, and their need to retain their industrial knowledge, as well as their pedagogical skills.

Another survey carried out by Hoegberg et al "Determinants of Declining School Belonging 2000–2018: The Case of Sweden", based on PISA was undertaken in Sweden. These results from data on Swedish students aged 15–16 years from the Programme for International Student Assessment (PISA) between 2000 and 2018, concluded that "the decline in school belonging in Sweden was driven by a disproportionately large decline at the bottom part of the distribution, and was greatest for foreign-born students, students from disadvantaged social backgrounds, and for low-achieving students."

They also highlight the fact that "the decline could not be accounted for by changes in student demographics or observable characteristics related to the school environment." They added that the decline did, however, "coincide with a major education reform, characterized by an increased use of summative evaluation, and an overall stronger performance-orientation."

Are these results really conclusive? Sweden is considered, based on the PISA report/statistics (see below), to be one of the countries/economies

with a mean performance/share of top performers/share of low achievers not significantly different from the OECD average. See OECD, PISA 2015 Database pages 5,7, 8 and 9

Table: Source: OECD, PISA 2015 Database

Countries with values not statistically different from the OECD average
Countries/economies with lower performance or less equity than the OECD average

Inclusion and fairness indicators			Difference between PISA 2006 and PISA 2015 (PISA 2015 - PISA 2006)			
Score-point difference in science associated with one-unit increase on the ESCS[1] index	Percentage of resilient students[3]	Difference in science performance between immigrant and non-immigrant students, after accounting for ESCS and language spoken at home[4]	Percentage of variation in science performance explained by students' socio-economic status	Score-point difference in science associated with one-unit increase on the ESCS index	Percentage of resilient students	Difference in science performance between immigrant and non-immigrant students, after accounting for ESCS and language spoken at home
Score dif.[2]	%	Score dif.	% dif.	Score dif.	% dif.	Score dif.
38	29.2	**19**	**-1.4**	0	**1.5**	**-6**
47	48.8	**-13**	m	m	m	m
42	48.8	**53**	1.6	2	**8.2**	m
32	48.3	**28**	-1.0	2	2.0	-2
45	46.3	m	1.0	2	2.0	m
40	42.8	**36**	1.8	**10**	**-10.4**	-11
12	64.6	**-19**	-0.1	0	**5.8**	-2
34	38.7	-5	0.3	1	0.7	**-11**
23	75.5	m	m	m	m	m
19	61.8	-1	-1.5	**-8**	-0.7	**10**
40	45.3	**135**	m	m	m	m
44	40.4	m	3.1	**13**	-3.2	m
49	30.4	-3	-2.0	0	-4.7	-9
43	34.6	14	-4.0	**-5**	**4.3**	1
44	32.9	**-13**	-0.4	2	-0.2	-8
37	35.4	**15**	-2.9	**-8**	**5.0**	9
42	33.5	**28**	**-4.0**	-5	**8.7**	7
47	30.7	**23**	-3.8	3	-1.3	-10
43	29.1	**16**	-0.7	0	1.2	**-20**
38	29.6	3	-0.5	1	0.4	6
48	27.2	**28**	-0.7	2	1.4	**-32**
34	27.5	**38**	**-3.6**	**-7**	**7.9**	7
40	34.6	m	-1.4	0	3.2	m
31	38.1	8	-1.4	3	4.4	**-49**
37	26.5	**23**	-0.4	1	**9.3**	8
33	31.6	-5	**-6.0**	**-13**	**12.3**	-10
45	25.9	**18**	0.1	0	-2.2	-17
57	26.6	**20**	-1.9	5	3.0	10
44	24.7	**40**	1.2	**6**	0.6	13
52	24.9	2	2.7	1	-3.9	-20
27	39.2	**26**	0.9	**3**	**10.7**	**-23**
26	35.2	**14**	-0.5	-4	**6.0**	7
29	25.5	5	-0.9	0	-1.0	-4
41	20.7	**22**	-1.7	2	1.5	**-16**
30	26.6	**11**	-0.6	-1	2.8	**-32**
47	19.3	-11	0.3	2	**-6.7**	-13
36	23.1	2	-2.6	-2	-2.1	11
38	24.4	**14**	-0.1	3	-0.5	7
37	14.9	**15**	m	m	m	m
28	17.0	**53**	**-2.6**	-3	-1.8	**24**
42	15.7	-9	0.9	0	2.3	1
47	21.8	-5	m	m	m	m
41	17.5	**40**	-3.6	**-4**	-2.8	m
34	18.1	**14**	-2.1	-2	-2.3	5
32	14.6	**21**	**-6.4**	**-6**	-0.4	m
41	13.6	**49**	**-6.3**	-7	**4.1**	m
30	7.7	**-77**	m	m	m	m
32	14.0	11	-1.6	-2	-1.8	m
34	11.3	m	-1.5	-1	4.8	m
31	10.1	1	m	m	m	m
33	13.4	0	m	m	m	m
m	m	m	m	m	m	m

	20	21.8	22	-6.1	**-7**	-1.4	21
	31	12.9	19	m	m	m	m
	22	18.4	-8	**-6.5**	-5	**-5.2**	m
	24	9.4	6	m	m	m	m
	27	5.7	**-77**	**2.4**	**15**	**4.9**	**-19**
	27	11.4	**60**	3.1	4	0.3	m
	19	12.8	**57**	**-5.2**	**-5**	-1.9	-21
	23	9.4	-7	**-2.6**	-1	1.8	12
	34	7.5	4	m	m	m	m
	25	7.7	-2	-1.6	0	-6.6	**13**
	22	10.9	m	3.5	1	-4.1	m
	27	9.4	**64**	**-4.5**	-1	-0.9	**30**
	30	3.2	29	m	m	m	m
	26	6.1	18	m	m	m	m
	17	4.7	**50**	0.1	-2	**-11.7**	-20
	25	4.1	**23**	m	m	m	m
	18	2.5	**28**	m	m	m	m
	8	7.4	**33**	m	m	m	m
	25	0.4	**26**	m	m	m	m

Countries/economies with values **above** the OECD average

Countries/economies with values not significantly different from the OECD average

Countries/economies with values **below** the OECD average

	Mean science score	Beliefs about the nature and origin of scientific knowledge		Share of students with science-related career expectations				Motivation for learning science		
		Index of epistemic beliefs (support for scientific methods of enquiry)	Score-point difference per unit on the index of epistemic beliefs	All students	Boys	Girls	Increased likelihood of boys expecting a career in science	Index of enjoyment of learning science	Score-point difference per unit on the index of enjoyment of learning science	Gender gap in enjoyment of learning science (Boys - Girls)
	Mean	Mean index	Score dif.	%	%	%	Relative risk	Mean index	Score dif.	Dif.
OECD average	493	0.00	**33**	24.5	25.0	23.9	**1.1**	0.02	**25**	**0.13**
Singapore	556	0.22	**34**	28.0	31.8	23.9	**1.3**	0.59	**35**	**0.17**
Japan	538	-0.06	**34**	18.0	18.5	17.5	1.1	-0.33	**27**	**0.52**
Estonia	534	0.01	**36**	24.7	28.9	20.3	**1.4**	0.16	**24**	0.05
Chinese Taipei	532	0.31	**38**	20.9	25.6	16.0	**1.6**	-0.06	**28**	**0.39**
Finland	531	-0.07	**38**	17.0	15.4	18.7	**0.8**	-0.07	**30**	0.04
Macao (China)	529	-0.06	**26**	20.8	22.0	19.6	**1.1**	0.20	**21**	**0.16**
Canada	528	0.30	**29**	33.9	31.2	36.5	**0.9**	0.40	**26**	**0.15**
Viet Nam	525	-0.15	**31**	19.6	21.2	18.1	**1.2**	0.65	**14**	**0.06**
Hong Kong (China)	523	0.04	**23**	23.6	22.9	24.2	0.9	0.28	**20**	**0.26**
B-S-J-G (China)	518	-0.08	**37**	16.8	17.1	16.5	1.0	0.37	**28**	**0.14**
Korea	516	0.02	**38**	19.3	21.7	16.7	**1.3**	-0.14	**31**	**0.32**
New Zealand	513	0.22	**40**	24.8	21.7	27.9	**0.8**	0.20	**32**	0.03
Slovenia	513	0.07	**33**	30.8	34.6	26.8	**1.3**	-0.36	**22**	-0.03
Australia	510	0.26	**39**	29.2	30.3	28.2	**1.1**	0.12	**33**	**0.16**
United Kingdom	509	0.22	**37**	29.1	28.7	29.6	1.0	0.15	**30**	**0.18**
Germany	509	-0.16	**34**	15.3	17.4	13.2	**1.3**	-0.18	**29**	**0.43**
Netherlands	509	-0.19	**46**	16.3	16.9	15.7	1.1	-0.52	**30**	**0.25**
Switzerland	506	-0.07	**34**	19.5	19.8	19.1	1.0	-0.02	**30**	**0.17**
Ireland	503	0.21	**36**	27.3	28.0	26.6	1.1	0.20	**32**	**0.09**
Belgium	502	0.00	**34**	24.5	25.3	23.6	1.1	-0.03	**28**	**0.20**
Denmark	502	0.17	**32**	14.8	11.8	17.7	**0.7**	0.12	**26**	**0.09**
Poland	501	-0.08	**27**	21.0	15.4	26.8	**0.6**	0.02	**18**	**-0.10**
Portugal	501	0.28	**33**	27.5	26.7	28.3	0.9	0.32	**23**	**0.08**
Norway	498	-0.01	**35**	28.6	28.9	28.4	1.0	0.12	**29**	**0.27**
United States	496	0.25	**32**	38.0	33.0	43.0	**0.8**	0.23	**26**	**0.21**
Austria	495	-0.14	**36**	22.3	26.6	18.0	**1.5**	-0.32	**25**	**0.23**
France	495	0.01	**30**	21.2	23.6	18.7	**1.3**	-0.03	**30**	**0.31**
Sweden	493	0.14	**38**	20.2	21.8	18.5	**1.2**	0.08	**27**	**0.22**
Czech Republic	493	-0.23	**41**	16.9	18.6	15.0	**1.2**	-0.34	**27**	-0.06
Spain	493	0.11	**30**	28.6	29.5	27.8	1.1	0.03	**28**	**0.11**
Latvia	490	-0.26	**27**	21.3	21.1	21.5	1.0	0.09	**18**	0.03
Russia	487	-0.26	**27**	23.5	23.2	23.8	1.0	0.00	**16**	0.07
Luxembourg	483	-0.15	**35**	21.1	24.3	18.0	**1.4**	0.10	**26**	**0.14**
Italy	481	-0.10	**34**	22.6	24.7	20.6	**1.2**	0.00	**22**	**0.24**
Hungary	477	-0.36	**35**	18.3	23.9	12.8	**1.9**	-0.23	**20**	-0.02
Lithuania	475	0.11	**22**	23.9	22.5	25.4	**0.9**	0.36	**20**	**-0.14**
Croatia	475	0.03	**32**	24.2	26.8	21.8	**1.2**	-0.11	**22**	0.05
CABA (Argentina)	475	0.09	**28**	27.8	26.2	29.3	0.9	-0.20	**15**	**-0.14**
Iceland	473	0.29	**28**	23.8	20.1	27.3	**0.7**	0.15	**24**	**0.26**
Israel	467	0.18	**38**	27.8	26.1	29.5	**0.9**	0.09	**20**	0.06
Malta	465	0.09	**54**	25.4	30.2	20.4	**1.5**	0.18	**48**	**0.11**
Slovak Republic	461	-0.35	**36**	18.8	18.5	19.0	1.0	-0.24	**25**	-0.02
Greece	455	-0.19	**36**	25.3	25.7	24.9	1.0	0.13	**27**	**0.12**
Chile	447	-0.15	**23**	37.9	36.9	39.0	0.9	0.08	**15**	**-0.09**
Bulgaria	446	-0.18	**34**	27.5	28.8	25.9	1.1	0.28	**17**	**-0.16**
United Arab Emirates	437	0.04	**33**	41.3	39.9	42.6	**0.9**	0.47	**22**	-0.02
Uruguay	435	-0.13	**27**	28.1	23.8	31.9	**0.7**	-0.10	**16**	**-0.07**
Romania	435	-0.38	**27**	23.1	23.3	23.0	1.0	-0.03	**17**	-0.05
Cyprus[1]	433	-0.15	**33**	29.9	29.3	30.5	1.0	0.15	**29**	0.06
Moldova	428	-0.14	**37**	22.0	22.5	21.3	1.1	0.33	**22**	**-0.17**
Albania	427	-0.03	m	24.8	m	m	m	0.72	m	m
Turkey	425	-0.17	**18**	29.7	34.5	24.9	**1.4**	0.15	**12**	0.01
Trinidad and Tobago	425	-0.02	**28**	27.8	24.6	31.0	**0.8**	0.19	**24**	-0.01
Thailand	421	-0.07	**35**	19.7	12.4	25.2	**0.5**	0.42	**18**	-0.05
Costa Rica	420	-0.15	**16**	44.0	43.8	44.2	1.0	0.35	**4**	-0.03
Qatar	418	-0.10	**33**	38.0	36.3	39.9	**0.9**	0.36	**25**	0.00
Colombia	416	-0.19	**21**	39.7	37.1	42.0	**0.9**	0.32	**7**	-0.02
Mexico	416	-0.17	**17**	40.7	45.4	35.8	**1.3**	0.42	**12**	0.01
Montenegro	411	-0.32	**23**	21.2	20.1	22.4	**0.9**	0.09	**14**	**-0.07**
Georgia	411	0.05	**42**	17.0	16.4	17.7	0.9	0.34	**23**	**-0.13**
Jordan	409	-0.13	**28**	43.7	44.6	42.8	1.0	0.53	**23**	**-0.25**
Indonesia	403	-0.30	**16**	15.3	8.6	22.1	**0.4**	0.65	**6**	**-0.06**
Brazil	401	-0.07	**27**	38.8	34.4	42.8	**0.8**	0.23	**19**	**-0.04**
Peru	397	-0.16	**23**	38.7	42.7	34.6	**1.2**	0.40	**9**	0.01
Lebanon	386	-0.24	**35**	39.7	41.0	38.5	1.1	0.38	**32**	-0.04
Tunisia	386	-0.31	**18**	34.4	28.5	39.5	**0.7**	0.52	**15**	**-0.12**
FYROM	384	-0.18	**30**	24.2	20.0	28.8	**0.7**	0.48	**17**	**-0.29**
Kosovo	378	0.03	**22**	26.4	24.7	28.1	**0.9**	0.92	**14**	**-0.16**
Algeria	376	-0.31	**16**	26.0	23.1	29.2	**0.8**	0.46	**14**	**-0.12**
Dominican Republic	332	-0.10	**13**	45.7	44.7	46.8	1.0	0.54	**6**	-0.05

1. See note 1 under Figure 1. Snapshot of performance in science, reading and mathematics.

Notes: Values that are statistically significant are marked in bold.

Countries and economies are ranked in descending order of the mean science score in PISA 2015.

Source: OECD, PISA 2015 Database, Tables I.2.12a-b, I.3.1a-c and I.3.10a-b.

"Policies and practices for successful schools" OECD, PISA 2015 Results in Focus" at page 10

What the data tell us

Policies about learning science at school and performance in science

- The approximately 6% of students across OECD countries who reported not attending any regular science lessons score 25 points lower than students who reported attending at least one science lesson, after accounting for the socio-economic profile of students and schools. In 34 school systems, particularly in Austria, Belgium, Croatia, France, Germany, the Slovak Republic and Chinese Taipei, the students who reported not attending regular science lessons are more likely to attend socio-economically disadvantaged schools than advantaged schools.
- Across OECD countries, socio-economically advantaged schools are considerably more likely than disadvantaged schools to offer science competitions and a science club as school activities.
- How much time students spend learning and how science is taught are even more strongly associated with science performance and the expectations of pursuing a science-related career than how well-equipped and -staffed the science department is, which extracurricular science activities are offered at school and science teachers' qualifications.
- According to students' reports, and on average across OECD countries, teachers in advantaged schools explain or demonstrate a scientific idea (teacher-directed instruction) more frequently than do teachers in disadvantaged schools. Students who reported that their science teachers frequently use these practices and adapt their teaching to meet students' needs score higher in science, show stronger beliefs about the value of scientific enquiry, and are more likely to expect to pursue a science-related career than students who reported that their teachers use these practices less frequently.

The learning environment

- In most school systems, students in socio-economically disadvantaged schools are more likely to have skipped a day of school than students in advantaged schools. Between 2012 and 2015, the percentage of students who had skipped a whole day of school at least once in the two weeks prior to the PISA test increased by around 5 percentage points across OECD countries.
- Across OECD countries, school principals cited student truancy and staff resisting change as the problems that hinder student learning the most; they also reported that learning in their schools is least hindered by students' use of alcohol or illegal drugs, or students intimidating or bullying other students.
- Students in school systems that select students into different education programmes or types of schools at a later age reported receiving greater support from their teachers.

School governance, assessment and accountability

- Students in private schools score higher in science than students in public schools; but after accounting for the socio-economic profile of students and schools, students in public schools score higher than students in private schools on average across OECD countries and in 22 education systems.
- Standardised tests are used extensively across PISA-participating countries and economies. In about five out of six school systems, at least half of students are assessed at least once a year with mandatory standardised tests, and in about three out of four countries, at least half of students are assessed at least once a year with non-mandatory standardised tests.
- When choosing a school for their child, parents are more likely to consider important or very important that there is a safe school environment, that the school has a good reputation and that the school has an active and pleasant climate – even more so than the academic achievement of the students in the school.

Selecting and grouping students

- Thirty countries and economies used grade repetition less frequently in 2015 than in 2009; in only five countries did the incidence of grade repetition increase during the period. The use of grade repetition decreased by at least 10 percentage points in Costa Rica, France, Indonesia, Latvia, Macao (China), Malta, Mexico and Tunisia.
- Across OECD countries, socio-economically disadvantaged students, students with an immigrant background and boys are more likely to have repeated a grade, even after accounting for their academic performance, and their self-reported motivation and behaviour.
- The later students are first selected into different schools or education programmes and the less prevalent the incidence of grade repetition, the more equitable the school system, or the weaker the association between students' socio-economic status and their performance in science.

Source of above data and conclusions: OECD, PISA 2015 Results in Focus" at page 10

The study carried out by Markus et al "The Gender-Specific Role of Social Relationships for School Well-Being in Primary School: Do Peers and Teachers Matter Differently?", "expands on research on school well-being and social relationships at school". Limitations highlighted as being in need of consideration when interpreting the data are as follows (see page 224):

- First, the study relies only on self-reported data of one particular student cohort (primary school students from one region). They add that,
- In order to confirm and extend the findings, future studies should not only apply to investigations regionally, but also consider different school types, age groups, and involve multiple perspectives on relationships (e.g., teachers, head of school, parents).

According to the Conseil de l'Europe, well-being is regarded as " the experience of health and happiness, which includes mental and physical health, physical

and emotional safety, and a feeling of belonging, sense of purpose, achievement and success." In their opinion, it is a concept which is not only wide, but covers a range of psychological and physical abilities.

Five major types of well-being are also identified as follows:

- Emotional well-being – the ability to be resilient, manage one's emotions and generate emotions that lead to good feelings;
- Physical well-being – the ability to improve the functioning of one's body through healthy eating and good exercise habits;
- Social well-being – the ability to communicate, develop meaningful relationships with others and create one's own emotional support network;
- Workplace well-being – the ability to pursue one's own interests, beliefs and values in order to gain meaning and happiness in life and professional enrichment;
- Societal well-being – the ability to participate in an active community or culture."

It is also highlighted that “students’ well-being and their success in and outside school depend on their ability to use their competences for democratic culture.”

Hence, it is vital that the above classifications of what is regarded as well-being, be incorporated into the pedagogical curriculum – as well as into the teacher’s planning and design of classroom activities. It is also important to reiterate that a school environment that promotes not just the students’ well being, also directly and indirectly facilitates the staff’s well- being. As important as discipline and management of classroom behaviour are, teachers and students may be going through personal pressures at the same time and the classroom environment and climate should serve as conducive and facilitating not only for learning, but also as a place for coping with and addressing pressures that particularly arise from increased demands of the educational environment.

In her paper, “Building Positive Emotions and Playfulness “ (2021), Tidmand adds that “play can facilitate positive emotions and thus broaden the mindset (Fredrickson, 1998, 2001) encouraging novel, varied, and exploratory thoughts and actions, creating the urge to be creative when creativity is needed.

Further , she argues that, “play can consciously be used to broaden habitual modes of thinking and acting (Fredrickson, 1998, 2001). Playful people tend to perceive a lower level of stress (Magnuson & Barnett, 2013) and use adaptive coping strategies (Leung Chun Lok, 2014).”

The concept of positive psychology is also introduced (see page 424) to incorporate the term playfulness as “an important part of the Values in Action (VIA) strength of humour (Peterson & Seligman, 2004): the VIA Institute on Character’s definition of playfulness as “the core of humour and playfulness as a generator for reinvigorating the strength humour.”

Five ways of expressing playfulness are also highlighted, namely: spontaneity, expressiveness, creativity, being funny and silly.

As well as evaluating and assessing students, teachers perceptions of humour and playfulness, and the roles of these concepts within the classroom environment: particularly as facilitating tools for easing stress, improving relationships within the school environment: as opposed to obstructing and hindering tools to learning,

This survey will aim to identify challenges to the facilitation of effective teaching techniques and practices within the school environment.

As highlighted through the literature relating to the topic on adaptive coping strategies, and positive psychology the concepts of humour and play can apply, as well as be interpreted broadly. Hence the differences in interpretation, the boundaries within which they can and should be used, should also be defined. However, given specific and differing relationships – as well as the need to consider individual backgrounds and social, cultural contexts, a general interpretation cannot be applied across all levels.

The need for equity in applying rules generally to students will require a degree of flexibility depending on the stress levels applicable to individual students: based on the family backgrounds, pressures faced at school – as well as at home. Whilst some students face little or no pressures from home: inclusive of pressures to perform well in their exams, some may face additional financial, social – as well as pressures of adapting to the school environment: for various reasons and based on personal and family backgrounds. It's important for teachers to be aware of pressures that individual students may be facing and incorporate such vital knowledge in helping and explaining why humour and stress coping strategies need to be embraced: particularly where the student approaches the teacher directly or indirectly for "help". In other situations, the teacher should be able to discern within the reasonable boundaries to accommodate humor and play and what balance is to be struck in incorporating humor into the classroom environment: as opposed to activities and tasks that place students under undue and excessive pressures.

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