EMOTION AND COGNITION IN THE AGE OF AI

Executive summary

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Mounting evidence attests to the importance of emotional well-being to student learning—and to young people's futures as adults and citizens. First, learning is a social activity. How positively children interact with each other and their teachers during school shapes their academic achievement and emotional intelligence, a vital trait for success in all aspects of life.

Positive mental attitudes, self-regulation and self-determination all affect learning, creativity and skills acquisition, and influence how successfully people navigate life and deal with setbacks. As automation and artificial intelligence redefine a growing number of professional jobs, the human edge in the 21st century will increasingly center on interpersonal, creative and social skills that are fostered by emotional well-being, and reinforce it in return.

How does the education system view its role in advancing the well-being agenda? How are educators taking the growing empirical evidence and translating it into practice? Are schools putting in place policies and programs, in the curriculum or outside of it, to foster emotional well-being in students and teachers? What factors have the biggest influence on students' states of mind? How do emerging technologies connect to the positive education agenda?

This survey, conducted by The Economist Intelligence Unit and commissioned by Microsoft, explores how education professionals around the world perceive the connections between learning and emotional well-being, and how they develop the associated skills, attitudes, literacies and dispositions in learners. It asks how today's education technologies interact with social and emotional learning, and explores the practical measures that schools have taken to boost well-being—and the obstacles they face.

About this survey

The Economist Intelligence Unit surveyed 762 education professionals across 15 countries ranging from primary and secondary school teachers to student support officers, administrators and principals. The teachers in the survey ranged from those providing foundational early years instruction in reading, writing and mathematics to subject areas in children's later years, including technology and foreign languages. The survey design was also informed by an extensive review of peer-reviewed literature, and an expert advisory panel comprising the following persons:

- **Andreas Schleicher,** director, Directorate of Education and Skills, OECD
- **Alejandro Adler**, director of international education, Positive Psychology Center, University of Pennsylvania
- **Gabriel Heller Sahlgren**, research director, Centre for Market Reform of Education
- **Meik Wiking**, author and founder, The Happiness Research Institute
- **Marc Brackett**, founding director, Yale Center for Emotional Intelligence

Introduction

Positive psychology is a research inquiry into the science of human flourishing, spanning multiple cognitive and affective domains including moods and emotions, optimism, future-mindedness, self-regulation, and resilience. Its application to the education sphere has been termed "positive education". The approach combines a focus on academic learning outcomes with interventions that support emotional health—in a rigorous way that is measured and tracked.[1] These interventions are especially important today, in light of worrying data about the deteriorating mental health of young people, with significant rates of depression and anxiety in countries ranging from the US and the UK to South Korea.[2,3,4,5]

Educators interested in positive education approaches, from teachers to administrators and principals, need data and insight to guide them in implementing policies and practices in the classroom and the wider school environment. As education technology improves, there is also a need for greater understanding about its role in supporting or undermining emotional health. This survey asked educators their opinions about the relevance of emotions to learning, what they are doing to further this agenda and their challenges.

Defining well-being

Well-being spans physical, social, cognitive and emotional domains. At the emotional level, it spans the presence of both positive and negative affective states, from happiness and excitement to anxiety, and the individual's ability to regulate and manage negative emotions.

Cognitive or **psychological** well-being refers to life satisfaction as a whole and the presence of advantageous character attributes.

Measurement frameworks include factors like a person's sense of **purpose** and **meaning**, **autonomy** and **control**, **resilience**, and **relatedness** to others.[6] There are also objective measures such as financial security, physiological health and environmental quality. Precise definitions and models vary depending on the target of research.

1. Positive Psychology Center, Positive Education, https://ppc.sas.upenn.edu/sites/default/files/posedseligmanadler.pdf
2. The New York Times, Stressed and Depressed, Koreans Avoid Therapy, https://www.nytimes.com/2011/07/07/world/asia/07iht-psych07.html
3. Berkeley Institute for the Future of Young Americans, The Anxious Generation: Causes and Consequences of Anxiety Disorder Among Young Americans Preliminary Findings, https://gspp.berkeley.edu/assets/uploads/page/Policy_Brief_Final_071618.pdf
4. Johns Hopkins Health Review, The Rise of Teen Depression, https://www.johnshopkinshealthreview.com/issues/fall-winter-2017/articles/the-rise-of-teen-depression
5. The Guardian, Sharp rise in number of young people seeking help for anxiety, https://www.theguardian.com/society/2018/dec/07/sharp-rise-in-number-of-young-people-seeking-help-for-anxiety-childline
6. Carol Rhyff, "Psychological Well-Being Revisited: Advances in Science and Practice", Psychotherapy and Psychosomatics 83:1 (2014), pages 10-28, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4241300/

Section 1: Well-being goes mainstream

Educators see emotions as intrinsically linked to learning

Educators are convinced that emotional well-being improves student cognition. According to our survey, over three-quarters (79%) believe that positive emotions are "very" or "extremely" important for academic success. About the same number point to the learning benefits of positive, stable relationships (79%), engagement in challenging activities (75%), and a feeling of community and belonging (75%). Substantial majorities say that emotional well-being is "very" or "extremely" important for the development of foundational literacies (77%) such as reading and mathematics, and for emotional literacy (82%), communication skills (81%) and critical thinking (78%). In short, remarkably few educators contest the rise of "positive education" and of the progressive pedagogy agenda. They view well-being as a constructive force in shaping cognition and learning.

Half of educators work in schools with explicit well-being policies. All but 3% of the rest are developing policies or encouraging well-being but without a formal framework. Over half of those surveyed say their school now has a formal policy in place to promote student well-being (53%) and a further 23% say they are in the process of developing one. Only 3% say that their school has no formal policy and do not have any plans to create one. Educators with a well-being policy have done so not just as a form of pastoral care, but because they fully expect it to deliver learning gains: 46% of educators who have a well-being measurement strategy say that positive emotions are extremely important for academic success, compared with 35% of educators who are in the process of developing a strategy and only 22% of those who have neither a strategy nor plans to develop one. Although educators are broadly in agreement that emotional well-being is important for learning, nearly half of schools are only in the process of developing their own policies and initiatives. Now is an opportune moment to consider what an effective positive education strategy looks like for those who want to move from theory to practice.

Latin America is the most engaged region in our survey. Educators in Latin America (Brazil, Chile and Mexico) are the most enthusiastic and proactive adopters of well-being policies and ideas. Nearly two-thirds "strongly agree" that prioritizing students' emotional well-being is important for them developing into healthy adults and responsible citizens—compared with only 42% who strongly support that proposition in the rest of the world. They are putting it into action too: 38% of educators in Latin America have fully incorporated the development of emotional literacy into school life, compared with an average of 26% in other regions (and just 23% of European educators). They are strong believers in the importance of fully engaging students in challenging activities (50% call this "extremely important" to achieving academic success in school compared with 32% in other regions), and both the pursuit of achievement, success and mastery (46% vs 27%) and positive, stable relationships (44% vs 35%) also rate especially highly in terms of fostering positive academic outcomes.

"Engaged educators"—who see learning and well-being as closely bound—understand that students' emotions are influenced by a matrix of factors within school and outside

The most ardent supporters of positive education believe students' emotional well-being is "inextricably connected" to their academic success rather than just somewhat related. Over a third (37%) subscribe to this position in our survey. This group can be termed "engaged educators", in distinction to less engaged educators, defined as those who believe academia and well-being are, at most, only "somewhat" connected. Forty-three percent of engaged educators strongly contend that the topic of well-being has grown "much more important" in recent years compared with 16% who agree from the unengaged cohort. Such educators are more likely to work at an institution with a formal well-being policy (70% do, compared with 35% of the unengaged) and a strategy to measure it (57% vs 25%). Possibly as a result of having adopted a formalized approach to well-being, engaged educators strongly believe that the classroom environment plays a critical role— this encompasses both it being inviting and inclusive of all students without discrimination or exclusion (52% believe these qualities have a "very positive" impact on emotional well-being, compared with only 37% of the unengaged group) and as a safe setting where students feel supported to express themselves (61% vs 36%).

Engaged educators recognize that well-being is a shared responsibility supported outside of school hours. Larger numbers of them are firmly convinced that safe communities (62% vs 40% of the rest of the survey participants), healthy eating habits (56% vs 38%) and regular physical activity (52% vs 27%) have "very positive"' effects on well-being. By contrast, only 28% believe that a high socioeconomic community status has much of an effect on well-being, singling it out as the least impactful outside-of-school factor. Finally, engaged educators believe that technology plays a key role in empowering teachers to encourage well-being, particularly data and analytics—51% believe data and analytics help teachers encourage student well-being, versus 37% of unengaged educators.

Section 2: Putting well-being into practice

With around half of schools either developing or considering developing an emotional well-being policy, what can be learned from the early movers? Just under one in four educators self-report themselves in the "leader" category, meaning their students enjoy higher than average well-being compared with other schools in the country. This group, termed "leaders", offers insights into the common traits of high performing schools that the rest ("followers") could follow.

Leaders are more likely to have a formal well-being policy (65% vs 43%) and a measuring and monitoring strategy (58% vs 31%). They are also more apt to use every available metric to monitor students' emotional health. Leaders make greater use of the resulting data, with emphasis on proactive guidance, identifying unmet needs and devoting extra attention and support staff where necessary. Leaders are entirely persuaded about the benefits of a safe and welcoming in-class environment, both in terms of inclusivity (57% claim it has a "very positive effect" compared with 41% of followers) and student freedom of expression (64% vs 45%). And leaders feel just as strongly about the impact of supportive home environments (57% vs 47%) and safe communities (67% vs 49%), and stress the importance of providing opportunities for students to participate in civic engagement (52% vs 29%). A school is only one element in a student's broader environment.

Comprehensive data gathering enables personalized well-being solutions. Measurement of student well-being is necessary—and tricky. Most educators rely on subjective assessments, either by teachers or counsellors (54%) or by the students themselves (51%). Substantial minorities also look to standardized or informal questionnaires (43% and 30% respectively) to learn more about their students' states of mind. Those schools that rate most highly in well-being depend heavily on all these methods for data gathering, as well as medical (29%) and socioeconomic (30%) student evaluations. But there is no single method that stands apart from the rest. As a consequence, successful well-being data gathering relies on as many methods as possible to obtain a reasonably complete picture of the state of student well-being.

Schools mostly take ad hoc approaches to data implementation. When it comes to putting data to work through policies and actions, most schools have adopted an ad hoc approach. A plurality say they use student data to identify and devote extra attention to certain students (47%), often referring them to appropriate support staff or counselling services (47%). Almost as many use those data to proactively offer guidance (42%) and identify unmet emotional (39%) and academic needs (38%). Less than a third of educators say that they use student well-being data to inform personalized learning curricula (32%), and fewer

still use such data to inform change across the school or school district (29%) or the educational system itself (27%). The good news is that this kind of system-wide change seldom appears to be a requirement for improved student well-being. While leaders and the most engaged educators do use well-being data more often than their counterparts, the real difference-maker appears to be their proactive approach. Leaders are much more apt to proactively offer guidance and personalized curricula, as well as identifying unmet student needs.

Technology can support emotional health, both directly and indirectly, but some practices and use cases are more effective than others. Technology is playing a growing role in the modern day classroom, in both developed and emerging economies. While its effect on learning has been the focus, there is, as yet, less explicit research on how technology impacts emotions. The survey takes a step towards fleshing out this relationship. Educators see technology positively impacting well-being, but not all modes are equal. Tools that foster collaboration, and those that enable

data-gathering and analytics about students' emotional states, were the most strongly endorsed as helping teachers encourage student well-being, selected by 49% and 46% of respondents respectively. By contrast, online games (16%) and virtual assistants (15%), despite being widely discussed as potentially valuable additions to the personalized learning agenda, languish near the bottom of the list from a well-being perspective.

Technology offers support for teachers as well as students. There is a widespread consensus that the teacher's mood and well-being in the classroom is "very" or "extremely" influential on student outcomes—72% of educators say this in our survey, and even more from leader schools (82%). One obvious means of improving teacher morale (as well as reducing burnout) is automation. A software suite capable of meaningfully reducing time spent on administration will almost certainly mean more face time with students, improving well-being directly as well as producing positive ripple effects throughout.

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