

EdTech

Ethical Legal Social Issues

ELSI 101



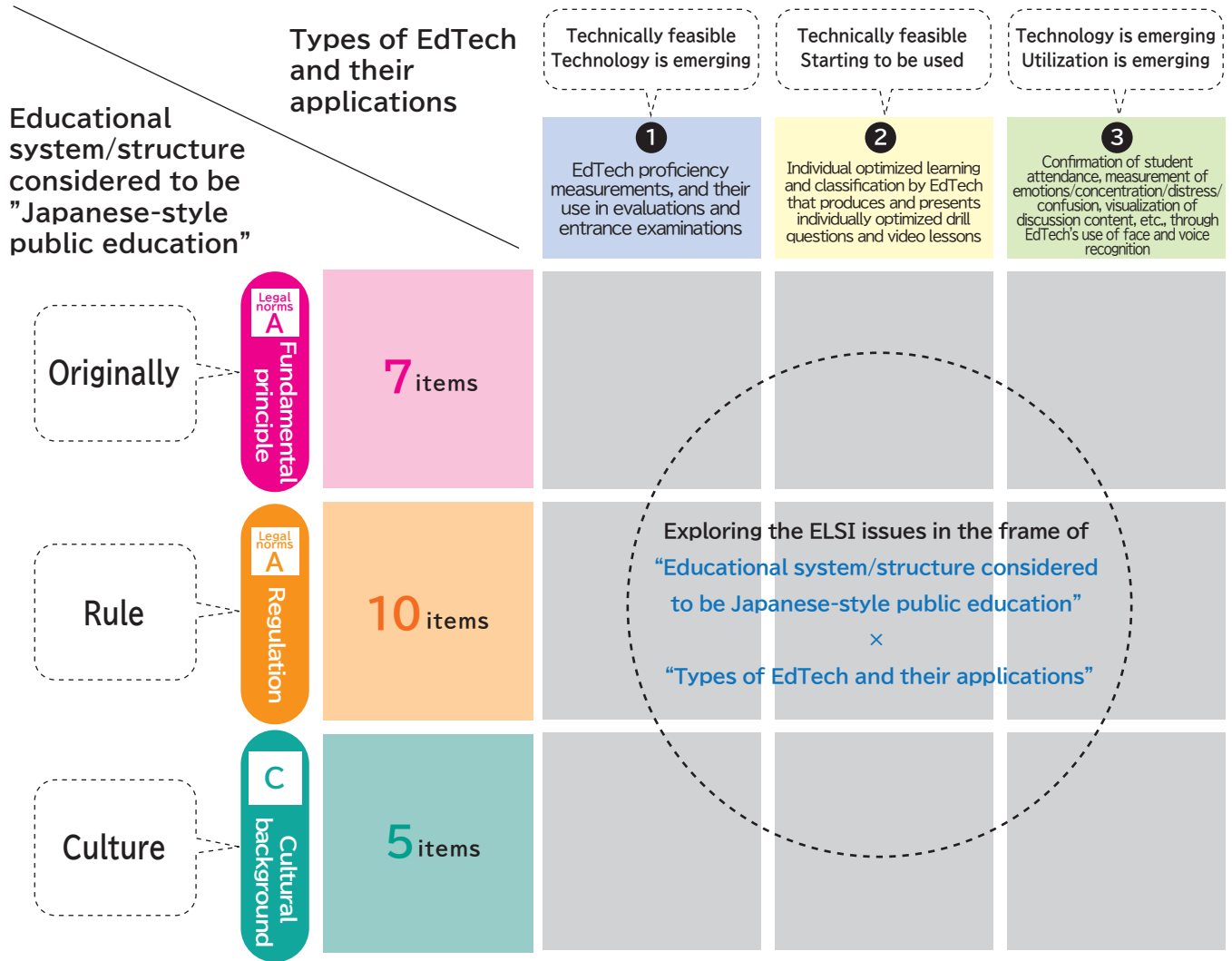
	EdTech proficiency measurements, and their use in evaluations and entrance examinations	Individual optimized learning and classification by EdTech that produces and presents individually optimized drill questions and video lessons	Confirmation of student attendance, measurement of emotions/concentration/distress/confusion, visualization of discussion content, etc., through EdTech's use of face and voice recognition
Fundamental principle			
Regulation			
Cultural background			

Author: "ELSI of Educational Technology using Student Learning Data" Project (at Kei Kano Lab., Shiga University)

Designer and Illustrator: Atelier Caprice

*The booklet was produced as part of the "ELSI of Educational Technology using Student Learning Data" feasibility study project, supported by JST-RISTEX RInCA Program Grant Number JPMJRX21J8, Japan.

How to read the table



Legend for issues example 101

Scope of issues

0 Spanning multiple "Types of EdTech and their applications"

0 ①~③ Found in any of "Types of EdTech and their applications"

Acquisition/ Algorithm/ Application

Acquisition: Issues related to data acquisition

Algorithm: Issues related to algorithms and models

Application: Issues related to the use of data

Before / After

Before: Issues that existed before the introduction of EdTech

After: New (and expanding) issues arising from the introduction of EdTech

EdTech's ELSI Issues 101		Acquisition	Algorithm	Application	Before	After
1	Does ability equal academic ability? Or, should this also include non-cognitive abilities?			●	●	
2	When multiple algorithms exist, who determines the rules for choosing which algorithms to use, and how are these decisions made?		●			●
3	Is third-party oversight (auditing, inspection) guaranteed for algorithms?		●			●
4	In addition to the informed consent of guardians (parents, etc.), is the informed assent of children/students also obtained?	●				●
	... details of impact assessments, including risk assessment results, etc.?	●				●
	... tal consent/non-consent?	●				●

	Educational system/ structure considered to be "Japanese-style public education"	Specific constitutional law, legislation, ministerial ordinance, etc.	① EdTech proficiency measurements, and their use in evaluations and entrance examinations	② Individual optimized learning and classification by EdTech that produces and presents individually optimized drill questions and video lessons	③ Confirmation of student attendance, measurement of emotions/concentration of stress/confusion, visualization of discussion content, etc. through EdTech's use of face and voice recognition
Legal norms A Fundamental principle a 4	1	Right to receive education	Constitution, Article 26, Paragraph 1: "All people shall have the right to receive an equal education correspondent to their ability"		
	2	Free public education	Constitution, Article 26, Paragraph 1: "Right to receive education" Paragraph 2: "Compulsory education shall be free"		
	3	Prohibition of improper controls	Basic Act on Education, Article 16: "Education must not be subject to improper controls"		
	4	Prohibition of public expenditure for private education (projects, schemes, etc.)	Constitution, Article 89: "Expenditures of public money, and limits on its usage (appropriation)"		
	5	Respect for individual character, protection of privacy rights	Constitution, Article 13: "Personal rights" and "Right to privacy"		
	6	Prohibition of discriminatory treatment in education	Constitution, Article 14: "Equality under the law" and "Prohibition of discrimination"		
	7	Guarantee of human-based education and personality development	Basic Act on Education, Article 1: "Education must be provided with the aim of fully developing the individual character"		
Legal norms B Regulation a 7	8	Compulsory school-attendance system	School Education Act, Article 1: "In this Act, schools shall be kindergartens, elementary schools, junior high schools, compulsory education schools, high schools, secondary schools, special needs schools, universities, and colleges of technology"		
	9	Limitations on parties that can establish schools	School Education Act, Article 2: "Schools shall be established only by, the national government [...], local governments [...], and school corporations specified by Article 3 of the Private Schools Act [...]"		
	10	Specific age/grade principle for compulsory education (Course promotion principle)	School Education Act, Article 17: "Guardians have obligations to have their children attend elementary school [...] for six years starting from the day after their children reach the age of six years and ending when the children reach the age of 12," and "to have them attend junior high school until the end of the school year during which the children reach the age of 15"		
	11	"Seat-time" (class attendance) promotion principle in compulsory education (Credit-based promotion principle)	School Education Act, Enforcement Regulations, Article 57: "In elementary schools, approving the completion of courses for each school year and graduation must be determined by evaluating the past grades of school children."		
	12	Appropriate teacher's license principle	Education Personnel License Act, Article 3: "Education personnel must be persons who have received the appropriate license certification as stipulated by this Act."		
	13	Law-based employment terms and conditions and guarantee of status for public servants	Every Article and item (paragraph) of the Local Public Service Act		
	14	Protection of personal information of children attending school	Act on the Protection of Personal Information		
	15	Mass purchase of private industry educational materials	Characteristics of Japanese-style public education not necessarily grounded in law		
	16	Legal nature of the course of study (curriculum)	Characteristics of Japanese-style public education not necessarily grounded in law		
	17	Strictness of textbook screening system	Characteristics of Japanese-style public education not necessarily grounded in law		
C Cultural background a 9	18	Unequal power relationship between teachers and children/students			
	19	Equity rather than equality			
	20	Emphasis on the five basic subjects/ Emphasis on subjects required for entrance examinations			
	21	Emphasis on life guidance			
	22	Emphasis on academic background in society			

Examples 101(1~53)

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1	Right to receive education	Constitution, Article 26, Paragraph 1: "All people shall have the right to receive an equal education correspondent to their ability"	1 2 3 4 5 6 7 8 9 10 11 12 13 14	15 16 17 18	19 20 21 22
2	Free public education	Constitution, Article 26, Paragraph 1: "Right to receive education" Paragraph 2: "Compulsory education shall be free"		23 24 25 26	
3	Prohibition of improper controls	Basic Act on Education, Article 16: "Education must not be subject to improper controls"		27 28 29	
4	Prohibition of public expenditure for private education (projects, schemes, etc.)	Constitution, Article 89: "Expenditures of public money, and limits on its usage (appropriation)"		34 35 36	
5	Respect for individual character, protection of privacy rights	Constitution, Article 13: "Personal rights" and "Right to privacy"	41 42	37 38 39 40	43
6	Prohibition of discriminatory treatment in education	Constitution, Article 14: "Equality under the law" and "Prohibition of discrimination"	46	44 45 47	48
7	Guarantee of human-based education and personality development	Basic Act on Education, Article 1: "Education must be provided with the aim of fully developing the individual character"		49 50 51 52	53

EdTech's ELSI Issues 101		Acquisition	Algorithm	Application	Before	After
1	Does ability equal academic ability? Or, should this also include non-cognitive abilities?			●	●	
2	When multiple algorithms exist, who determines the rules for choosing which algorithms to use, and how are these decisions made?		●			●
3	Is third-party oversight (auditing, inspection) guaranteed for algorithms?		●			●
4	In addition to the informed consent of guardians (parents, etc.), is the informed assent of children/students also obtained?	●			●	
5	Does the information used in informed consent include details of impact assessments, including risk assessment results, etc.?	●			●	
6	Are children/students notified of the details of parental control and of parental consent/non-consent?	●			●	
7	Should an "opt-out" format be applied for consent?	●			●	
8	How to handle consent in the case of mother's consent and father's non-consent, divorce after both parents have given consent, the right to withdraw consent by a remarried spouse, etc.?	●			●	
9	Even in the case where a parent (guardian) has not consented to data acquisition from an EdTech service, should the child/student be allowed to use said EdTech service?			●		●
10	Do mechanisms exist for corrections where, due to inaccurate profiling, a mistaken evaluation has occurred?			●		●
11	Is there recognition of a right not to be evaluated by an EdTech efficiency measurement test?			●		●
12	Does the right exist to know the reasons for evaluation results?			●	●	
13	Where an evaluation includes parameters other than just test scores, how can it be guaranteed that factors indubitably related to prejudice/discrimination do not sway the evaluation?			●	●	
14	Are there assurances that the results of evaluations performed to promote the development of a child/student are not used in selection screening?			●	●	
15	Is the "right to be forgotten" recognized with respect to one's academic history (record)?			●	●	
16	In light of a court ruling against Amagasaki High School over its rejection of a student with a disability, is a decision not to choose "individual optimization" by EdTech recognized as a kind of freedom of choice?			●		●
17	Does this not become an infringement of the teacher's right to "educational freedom"?			●		●

EdTech's ELSI Issues 101		Acquisition	Algorithm	Application	Before	After
18	Is there recognition of "educational freedom" for AI?			●		●
19	Are considerations and mechanisms incorporated to ensure that disadvantageous evaluations of atypical students do not occur?			●		●
20	Should information about students with learning disabilities and/or hyperactive tendencies be acquired and used to screen and sort schools?			●		●
21	Is it at all possible to acquire sensitive personal information about children with special needs due to learning disabilities and/or hyperactive tendencies in the first place?		●			●
22	Issue requiring discussion: Do not inferences about the internal mind (attitudes, emotions, etc.) of children/students entail a failure to protect the freedom of thought and conscience of said persons?			●		●
23	If there is evidence of educational benefits, is the national government obliged to put in place an educational environment using EdTech?			●		●
24	If EdTech is used as a substitute for a teacher, does this fall under the "free-of-cost" educational guarantee?			●		●
25	In the case of digital terminals (tablets, etc.), will the cost of purchasing the related educational materials be privately or publicly funded?			●		●
26	If digital terminals are purchased with public money, can any related fees for LAN extension inside the student's home be borne privately?			●		●
27	If, for example, a system is created in which the subsidies and other payment standards and amounts will vary depending on whether or not a certain school has introduced EdTech promoted by the Ministry of Education, Culture, Sports, Science and Technology, will that not lead to the penetration of the government's message to children via public education?			●		●
28	What kind of education is deemed to be the government's message to a captive audience?			●	●	
29	It is acceptable if EdTech is to be used by a teacher as a teaching aid, but if the influence of EdTech surpasses that of human judgment, would that lead to "inappropriate control" by EdTech?			●		●
30	Does making school grades "visible" promote hierarchization of students by grades?			●		●
31	Is there no danger of so-called "over-measurement" from quantifying things that are difficult to quantify?			●		●
32	Is it suitable for EdTech provided by private enterprises to become enmeshed with educational contents and/or methods?			●		●
33	The "Asahikawa Gakute Judgment" is a leading case involving the freedom of education of school teachers (here, a teacher who opposed the National Achievement Test (or "Gakute") was charged with obstructing the execution of public affairs). When investigating today's issues such as "encounters between teachers and students that directly impact individual character," or when determining "to what extent teachers have leeway to say or do certain things (in the classroom etc.) in a free and creative way," how much emphasis should be given to the Supreme Court's ruling in this case?			●		●
34	Are public monies truly used for educational purposes, and not just nominally so?			●		●
35	Is it not possible that when introduction of EdTech, etc., is attempted without sufficient knowledge of information and communications technology (ICT), schools may be unable to grasp the contents and changes engendered by said introduction, with the result that they simply follow blindly what the tech provider instructs?			●		●
36	Can assistance monies be paid to an educational institution operated by an EdTech enterprise (i.e., an enterprise not designated under Article 1 of the School Education Act)?			●		●
37	Is the so-called "right to be forgotten" (e.g., the deletion of grades-related information or of learning-related information) recognized under the right to control information about one's self?			●		●
38	Is the information management system regarding information accumulation and management as well as its linking with other information sufficient?			●		●
39	With the intervention/participation of private enterprises, will a bias not occur wherein emphasis is placed not on individual character development, but on developing "human resources sought by private companies"?			●		●
40	With the intervention/participation of private enterprises, is there not a risk that schoolchildren will imbibe the messages of private companies under the guise of "public education"?			●		●
41	Is it appropriate to use elementary school grades for high-school entrance, university entrance examinations, etc.?			●		●
42	If visualization (with charts, etc.) focuses on academic performance rather than school life, is it not possible that more importance will be given to students' academic abilities, leading to an over-bias on the importance of a person's academic background?			●		●
43	Is there respect for an individual when a system can detect from their facial expressions, etc., things that they do not want to talk about or make known?			●		●
44	Will prejudice/discrimination occur via the use of academic-abilities information, learning-related information, etc.?			●	●	
45	Is there equality in assigning differing test problems, etc., to different students?			●		●
46	When artificial intelligence (AI) is used to evaluate documents, interviews, etc., is there a risk that scoring will be based on discriminatory criteria?			●		●
47	Will classifications (for determining members of specific school classes, etc.) based on differences in academic abilities ultimately not lead to discrimination?			●	●	
48	If students' posture and attitude are judged based on recognition accuracy (i.e. some faces tend to be recognized by face recognition as actively engaging in class and others tend to be recognized as expressionless), does not such disadvantage constitute discrimination?			●		●
49	Is it appropriate for the national government to set uniform evaluation standards?			●	●	
50	Will the value systems and expressions of private companies be linked with the evaluation standards for children/students that are used in public education?			●	●	
51	From a human-based education perspective, are children to be held responsible for their involvement in harmful and/or illegal activities using EdTech?			●		●
52	Should school "abilities" be set to mean "academic abilities," or should non-cognitive abilities also be included therein? ※ The same as 1			●	●	
53	If such a face recognition system encourages a majority of students to adopt expression methods and emotional expressions that tend to be recognized as actively engaging in class, does this not hinder the diversity of self-expression?			●		●

Examples 101(54~82)

	Educational system/structure considered to be "Japanese-style public education"	Specific constitutional law, legislation, ministerial ordinance, etc.	① EdTech proficiency measurements, and their use in evaluations and entrance examinations	② Individual optimized learning and classification by EdTech that produces and presents individually optimized drill questions and video lessons	③ Confirmation of student attendance, measurement of emotions/concentration/distress/confusion, visualization of discussion content, etc., through EdTech's use of face and voice recognition
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9	Limitations on parties that can establish schools	School Education Act, Article 2: "Schools shall be established only by the national government [...], local governments [...], and school corporations specified by Article 3 of the Private Schools Act [...]"		57	58
10	Specific age/grade principle for compulsory education (Course promotion principle)	School Education Act, Article 17: "Guardians have obligations to have their children attend elementary school [...] for six years starting from the day after their children reach the age of six years and ending when the children reach the age of 12," and "to have them attend junior high school until the end of the school year during which the children reach the age of 15"		59 60	
11	"Seat-time" (class attendance) promotion principle in compulsory education (Credit-based promotion principle)	School Education Act, Enforcement Regulations, Article 57: "In elementary schools, approving the completion of courses for each school year and graduation must be determined by evaluating the past grades of school children."		61 62 63 64	65
12	Appropriate teacher's license principle	Education Personnel License Act, Article 3: "Education personnel must be persons who have received the appropriate license certification as stipulated by this Act."		66 67 68 69	70 71
13	Law-based employment terms and conditions and guarantee of status for public servants	Every Article and item (paragraph) of the Local Public Service Act stipulated by this Act."		72 73 74 75 76	
14	Protection of personal information of children attending school	Act on the Protection of Personal Information		77	
15	Mass purchase of private industry educational materials	Characteristics of Japanese-style public education not necessarily grounded in law	78	79 80	
16	Legal nature of the course of study (curriculum)	Characteristics of Japanese-style public education not necessarily grounded in law		81	82
17	Strictness of textbook screening system	Characteristics of Japanese-style public education not necessarily grounded in law			

EdTech's ELSI Issues 101		Acquisition	Algorithm	Application	Before	After
54	Should there be recognition of completion of "compulsory education" for educational institutions, not designated under Article 1 of the School Education Act, which utilize EdTech?			●		●
55	Should "school education activities" other than those of incorporated educational institutions be permitted?			●		●
56	If a stockholding company, not an incorporated educational institution, comes to possess multifaceted academic-ability data of students, is there a risk that the data may be used for purposes other than education-related usage?			●		●
57	In line with the specific age/grade principle, should algorithms be added to ensure that questions are limited to those that are not older than the specified age?		●			●
58	Does ageism contravene the principle of individual optimization in education?			●	●	
59	When there is an attempt to shift to the "credit-based promotion" principle, will there be a considerable number of persons who become ineligible for graduation considering the current learning retention rates at junior high schools?			●		●
60	When there is an attempt to shift to the "credit-based promotion" principle, will proof of acquisition of credits or the like become necessary?			●		●
61	Will persons who make and present video lessons, etc., be required to have a teacher's license?			●		●
62	Will persons who create test questions, etc., be required to have a teacher's license?			●	●	
63	Will a simplified teacher's license be necessary for persons who create video lessons and test questions?			●		●
64	Is a third-party certification system by teacher's license holders necessary for algorithms?			●		●
65	What is the superior-subordinate hierarchical relationship between a teacher and EdTech (created by a teacher's license holder) and EdTech (created by a person who does not have a teacher's license)?		●			●
66	Should students' academic performance be linked to teacher salary?			●	●	
67	If student performance is used to rank schools or linked directly to teacher evaluation, is it not necessary to establish rules for such a system?			●		●
68	Will not teacher evaluation items be trivialized to what can be measured?			●		●
69	Is there not a danger of intervention in personnel affairs through EdTech?			●		●

EdTech's ELSI Issues 101	Acquisition	Algorithm	Application	Before	After
70 Are educational results due to EdTech to be recognized as the educational results of teachers?			●		●
71 Is there a possibility that the extent of concentration, facial expressions, physical gestures, etc., displayed by teachers will become target items for teacher evaluations?			●		●
72 How should one consider and treat cases where sensitive individual information is used to infer, via profiling, that said individual requires special care or consideration?			●		●
73 As for consent concerning third-party providers, are rules and regulations required that conform to the freedom of expression and freedom of academic study, and which also consider educational freedom?	●				●
74 How should the usage of anonymously processed information be treated?	●				●
75 How should requests for the cessation of use, etc., of collected data be treated?	●				●
76 Will not schools and teachers emulate the methods of EdTech to voluntarily collect excessive personal information?	●				●
77 Does the mass introduction of EdTech services entail expenditures of public monies for private businesses?			●		●
78 Will there be approval for entrance examinations and academic ability tests that do not conform to the state curriculum guidelines?			●		●
79 If students with low (academic) abilities, as a result of "individual optimization," are unable to learn all of the contents stipulated in the government's course of study, will it not amount to a violation of said course of study guidelines?			●		●
80 What should the treatment be for visual lessons that do not follow the curriculum guidelines?			●		●
81 Is it not necessary to provide mechanisms for officially authorizing algorithms?		●			●
82 Will approval be granted for entrance examinations, academic ability tests, video lessons, etc., that do not conform to the contents of officially approved textbooks?			●		●

Examples 101(83~101)

		① EdTech proficiency measurements, and their use in evaluations and entrance examinations	② Individual optimized learning and classification by EdTech that produces and presents individually optimized drill questions and video lessons	③ Confirmation of student attendance, measurement of emotions/concentration/stress/confusion, visualization of discussion content, etc. through EdTech's use of face and voice recognition
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18	Unequal power relationship between teachers and children/students		83	
19	Equity rather than equality	84 85		86
20	Emphasis on the five basic subjects/Emphasis on subjects required for entrance examinations	87		88 89
21	Emphasis on life guidance	90	91 92	93 94 95 96
22	Emphasis on academic background in society	97 98	99 100	101

EdTech's ELSI Issues 101		Acquisition	Algorithm	Application	Before	After
83	Do children or students view the facial features and attitudes of teachers and urge their parents or guardians to give their consent, or do they show their support?	●			●	
84	Can there be mechanisms/systems for measuring academic abilities in a way that enables comparisons despite different problems given to different students?			●		●
85	What are the grounds for making all problems identical for everyone?			●		●
86	The use of technologies is expected to increase equality in evaluation of interests, motivation, and attitudes compared with the subjective evaluation of human teachers. However, will objective quantification (scoring) of such things as learning disabilities and/or hyperactive tendencies result in such conditions being treated in a fixed, inflexible way?			●		●
87	Is it not possible to further focus on specific subjects for which EdTech services are provided, leading to an even greater emphasis on those subjects that are tested in entrance examinations?			●		●
88	Will the children/students be able to discover the working mechanisms of algorithms, hack them to improve their evaluation levels, and even share their acquired know-how on social network services (SNS), etc.?			●		●
89	Will there not be a convergence of expression methods and emotional expressions that tend to be valued highly in a face-to-face interview, etc.?			●		●
90	Will schools no longer be able to depict the measured/ascertained abilities of each student in a "descriptive" fashion as it is done in report cards?			●		●
91	Is it necessary to add EdTech functions that prioritize student guidance elements, such as those that help improve postures or those that boost students' self-worth by encouraging them to speak in class?			●		●
92	If the default choice becomes division into classes or groups based on the results of drills-based learning, will it become difficult to carry out group activities that give daily lifestyle-related guidance to students?			●		●
93	When there is constant recording of children/students, will that not make it difficult for these individuals to forge relationships based on their "natural" selves? Will children/students not constantly interact on a superficial basis with the intention of obtaining a "good" evaluation?			●		●
94	With the accumulation of recordings of a child/student's past problematic behavior, even if that child shows growth and development (maturation) over time, will that child/student not be "stuck with" that reputation, etc., making appropriate evaluations in the future unlikely?			●		●
95	In the United Kingdom, for example, teachers only teach classes; they are not involved in taking attendance, collecting lunch fees, and so on. Meanwhile, Japanese teachers work in an "all-around" fashion, doing a wide variety of different tasks. Will the teacher's duties not be taken over in those areas where EdTech can serve as a substitute or alternate performer?			●		●
96	In the case where voice recognition is used to record the details of student guidance and teaching, will that not make sensitive information available to persons other than the homeroom teacher, with a risk of violating privacy rights?			●		●
97	If academic history and abilities are to be evaluated in a cumulative manner, will it not be the case that the disparities in educational investment of families will not disappear over the course of years, meaning that these disparities will become more visually apparent?			●		●
98	Can academic history and abilities be linked to personality evaluation?			●		●
99	When the "optimal" value for "individual optimization" recommended by a system is not proven with evidence, is there not a risk that the "individual optimization" as designated by the system in its first introduction and use will become a kind of de facto standard, locking in those values as "standards"?			●		●
100	For a junior high school entrance examination where, in general, elementary school grades are ignored, is there not a risk that some students may emphasize the things they learn at test-preparation or cram schools more than their ordinary school education, as a result of which they would no longer be able to provide succinctly accurate and correct responses in their schoolwork, classes, etc.?	●				●
101	If a student's normal attitude toward classes is written in survey documentation for future entrance examinations, will that not entail a convergence of expression methods and emotional expressions that tend to be evaluated highly?			●	●	