



## FEATURE

### Learning, socialization and education in the digital classroom

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## Learning, socialization and education in the digital classroom

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### Abstract

This feature explores what consequences an increased use of tablets and learning software has for teaching, learning and socialization of pupils in classrooms. It is closely oriented to Luhmann's distinction between social and mental systems and his concept of socialization as a necessary side effect of education ("expectations of expectations"). Concepts central to the theory and the distinction between education and instruction are explained in detail. Finally, these concepts are used to analyze the consequences of classroom-based teaching increasingly relying on individual work with digital media instead of personal interactions among pupils and teachers.

**Keywords:** Niklas Luhmann, classroom interaction, socialization, tablets, learning software

### I. Socialization a by-product of education

For understanding what schools specifically do, terms like *learning*, *socialization* and *education* are usually used. Obviously in each case pupil's behavior will be or shall be transformed. By learning we mean all structural changes of behavior. Education tries to influence this change by communicating expectations, which others shall fulfil. Socialization is one's own internalized psychological dealing with external social expectation, for example in the context of education..<sup>1</sup>

It is also obvious, that learning does not only occur in schools, but is possible in every new situation, and beyond education there are many reasons and often real pressure, to react to social expectations..<sup>2</sup> Communicated or observed in behavior, they confront us with the alternative of choosing between conforming or deviating behavior on our part. There may be a grey zone between the two, but over time such reactions leave their marks and change behavioral structures, too. So, expectations are the joint and hinge for adjusting our behavior towards others. We use them to orient and stabilize our own behavioral choices in every social context.

Perhaps we feel sometimes indifferent, but social coordination exists only in this way: expectations that we presume, observe or are told about, and our own expectations that we form as a result, or have already formed in similar situations. From this point of view, we can say, socialization is the expectation of social expectations. Durkheim (1988) introduced the term around 1900 in connection with the question of how social norms and cultural values can be transferred from one generation to the next. Education seemed necessary but not sufficient to entirely explain this transfer. Today we naturally

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<sup>1</sup> Lasting behavior change includes acting and experiencing, emotionally and cognitively. Certainly, the body learns as well (immune system) and gets stimulated at school towards controllable skills (sitting quietly, sports).

<sup>2</sup> Social expectations refer to the behavior of others in social contexts. That someone will walk faster if he is in a hurry, is not a *social* expectation; that he does not run over anyone else in this process is one, though.

assume, that norms are communicated, learned and more or less internalized over time, not only in education but also in other social contexts.<sup>3</sup>

Expectations “have their most important function in the fact, that they can be disappointed”. This objection comes from Luhmann (1987, p.176). We take it seriously and assume especially for schools, that not every expectation from teachers will be fulfilled and not every pedagogical norm is conformably internalized. So, the “distribution of conforming and deviating socialization [...] is an empirical question; it is among other aspects a problem of age and the context in which socialization takes place. The process always reproduces both possibilities. The effect of internalizing is actually based on the fact that one has to position oneself in favor of or opposed to an expectation.” (Luhmann 2004, p.95).

In educational contexts in general it can be said that deviant behavior leads to negative reactions, while conforming behavior is positively reinforced. There is no other way to make clear that an expectation is meant seriously. In a circle of friends or a work team, indirect reinforcement effects also occur, but in educational situations the intention *must be* clearly marked and the reactions to it conditionally reinforced. Glances are often sufficient as perceptible reactions, but without interaction it does not work in every case. Therein lies an important insight from corona-induced homeschooling. Education from a distance is an illusion. It requires situations with mutual perception, in which reactions can be attributed and specifically reinforced. Learning programs on the screen cannot educate, they presuppose learning motivation that has already been established beforehand in interactive contexts.

Anyone who becomes aware of educational intentions can “ostensibly submit to them or openly rebel. In terms of effects, this concomitant socialization will therefore not seldom outpace education and shape the outcome more than the pedagogical intention, however well planned” (Luhmann, 2004, p.103). Socialization is a constant concomitant phenomenon of education that is difficult to isolate and determine empirically. In their everyday work, teachers must trust to lay an expectation into this web of other- and self-selective reinforcement in such a way that its adoption by the students is made probable. Teaching interactions in classrooms are specialized and professionalized in order to construct such occasions of probability.

To a certain extent, classroom interactions can also be standardized. Because it is always about the students' learning, knowledge and the abilities. Successes and failures are marked according to criteria that are as uniform as possible. An asymmetrical distribution of roles determines that only the teacher may *educate* and not the learners - even when both sides *learn from* each other. Lessons, subjects and class division additionally support the interactions as organizational pillars.<sup>4</sup>

But despite certain standards, *technology* for class-based teaching is impossible. This is mainly due to the fact that successes of teaching cannot be immediately observed and used to control the further course of communication. Spot checks and immediate control always mean an interruption of the teaching. The distinction “understood - (still) not (completely) understood” does certainly serve as orientation, but the success rate of the teaching in the class is not immediately recognizable and has to

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<sup>3</sup> Family, school, peer group and workplace are the traditional and primary contexts of socialization.

<sup>4</sup> Accordingly, attempts at mediation in the corridor and during the break quickly lose their chances of success.

wait until after the test. This is the reason why communication in the classroom often pokes around in the vague and must be improvised.<sup>5</sup>

## II Process and function of internalization

Therefore, education never can communicate its intentions without the risk of rejection. *Internalization* means a mental or psychological process which is very difficult to grasp empirically.<sup>6</sup> It is not possible to observe exactly when and where it starts, how hesitantly or in which tier, how persistent it is, when it subsides and whether it becomes less frequent over time. Being confronted with a great number of varied expectations, make it less likely to have a fixated attitude towards each one of them. On the other hand, the more often and directly we are confronted with similar expectations, the more likely it becomes to form a predetermined position. Apart from frequency and the possibility of divergent self-fixation, we internalize foreign expectations based on practical reasons, expediency, sympathy, habit, or unconscious motives.

Internalization is a mental process that takes place latent and incidentally - psychology can try to make them conscious, but only retrospectively. Retrospectively, we also have a sample available, and it is very simple. Whoever has internalized an expectation will not react one way one time and quite differently on the next moment; at least not without reason. Internalisation is difficult to observe, because of its eventful character. Like all mental realities (thoughts, feelings, decisions and intentions) expectations are events that arise and pass away. This is also true for those, that recur regularly and acquire structural value by setting the course for a particular behavioral choice in a similar way over and over again.

A century after Freud, Luhmann reminds us, that "we do not even have the beginnings of an empirical theory" (Luhmann, 1987, p.174) regarding socialization. This is also why he calls it a "dark counter-term" to education, which is why he uses it rarely and only in reference to education (cf. Luhmann, 2002, p.48ff; 2004, p.13ff and p.111ff). This is consistent from a sociological perspective, which aims at social processes rather than mental ones. Even more so if it is based on a systems-theoretical approach, according to which social and psychological events can never mix, even if our consciousness cannot always distinguish them.

Internalization processes are not only intransparent from the outside, there is also little room for introspection. We do not consciously recognize the moment when we react to an external expectation as a *matter of course*. This synchronous intransparency is part of the general function and economy of attention, which forms schemata and expectations in such a latent way, that irritations are quickly recognized. To set learning in motion, only deviating cases must actually be remembered.<sup>7</sup> A conscious

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<sup>5</sup> In this sense, Luhmann and Schorr speak of *technology deficit*, because it ultimately attempts something impossible, namely to specifically animate consciousness to learn through communication (cf. Luhmann and Schorr 1988, pp.120ff and 230ff).

<sup>6</sup> Scepticism about questionnaires on value attitudes is appropriate because they easily suggest expectations and inspire unrealistic self-portrayals.

<sup>7</sup> The sudden break in a regular perceptual continuum attracts our attention. Gombrich presumes, that "looking for breaks" is the evolutionary most successful form of perception processing. From repeated sequences of perception, average expectations or rules are automatically formed and can be monitored with minimal

internalization would make it more difficult. Attempts would be made to control the process, and this would mean that disappointments would make expectations more unsure. A chosen internalization would lose value when it becomes disappointed. Not consciously formed, the disposition can survive in case of deviation and can nevertheless give orientation value for future behavior.

Such psychical stabilization of internalized expectations is not entirely rational but effective. If a social expectation is fulfilled by others, we think that it was *close to reality*, i.e., coincidence as reason is eliminated. If an expectation is disappointed, it can be held *normatively*, i.e., the others are wrong. Counterfactual usability means a self-fixation whose reasons may only be consciously reconstructed when needed. Learning remains possible, but only at the price of current instability, until new social expectations are repeated, confirmed and unconsciously condensed into a new internalization.<sup>8</sup>

Socialization prevents the immediate “re-expectation” of every new social experience. A slow and casual formation of structure, which is also inwardly opaque, makes it possible, to adjust mental structures to social processes and keep us capable of learning at the same time. Given the volatility of psychical and the uncertainty of social processes, on the psychical side it is the precondition for (conforming or deviating) integration of external expectations. It allows lasting social alignment, despite the unpredictability of others’ behavior.

Our summarized socialization limits and directs behavioral options in an expectable, yet unpredictable social world. Sensitive to disappointment, it is exposed to probation and reproduces again and again the *double contingency* in all social processes. This is how Luhmann describes the fact that people can always choose their behavior differently (even in organizations) and that all agents know this about each other.<sup>9</sup> Accordingly, he thinks of “socialization as a very general occurrence [...] namely, that someone confronted with social expectations can react either conformably or deviantly and thereby accumulates his own experiences...that one accumulates different experiences depending on whether one follows a conforming or deviant line. When the concept is set in this way, it becomes a question of whether and how one can intentionalize socialization processes as education” (Luhmann, 2004, p.13; cf. 95 ff. and 1987, p.177).

The question is obviously important because direct intentional influence on socialization through education is impossible, because there is no direct transfer of communicated aims into experience. Instead, educational proposals always trigger different possible ways of reaction. Confronted daily with the expectations of teachers (and fellow students), those affected form their own attitudes and behavioral routines in response, just because there is no direct import into the “self” and no transfer in

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attention. “Our entire sensory apparatus is basically set up to indicate unexpected changes” (Gombrich, 1982, p.135). This can also be related to the formation and monitoring of social expectations.

<sup>8</sup> According to Piaget, cognitive and sensorimotor schemata are either adapted to a new situation (accommodation) or the situation and perception is adapted to an existing schema (assimilation). Both concepts are necessities according to this model of development, but with alternating emphases. In view of lifelong socialization, a stage model is difficult to transfer, but perhaps internalized expectations are assimilated and generalized until accommodation becomes inevitable (cf. Bautz, 1991).

<sup>9</sup> Luhmann calls this “*conditio socialis*”, meaning that one’s freedom implies the other’s insecurity. (Luhmann and Schorr, 1988, p.121; 1986, p.75f.; Luhmann, 1984, p.362 ff.). To simplify this difficulty in all real interactions, interactive programs reduce the double contingency on one side. See Bautz (2022, p.7f.).

the other direction. That is why it is not entirely correct to say, that schools “socialize”. It would be more accurate to speak of *self-socialization* on the occasion of school education. Pupils and students socialize themselves. This prevents from having to choose over and over again between conformity, deviation, adaptation and resistance in every lesson.<sup>10</sup>

### III Tablets with learning applications don't help to develop social expectations

Against this background, tablets and learning applications are supposed to make teaching technically more efficient. They make it possible to locate the need for support *factually* more precise, to tailor the learning proposals *socially* more individual and to carry out the assessment of the more immediate *temporally*. The question that is of interest here is not how successful learning can be done with these modern tools, but what it means for education and socialization.

A lesson that conveys the content primarily via tablets not only eliminates distractions and disruptions that go along with social interaction, but also the starting point for educational resonance. Expectations communicated through a screen anonymize the personal sender. Especially in learning software there is no personal address, no accountability of reactions and reinforcement. Programs are unimpressed by learners' motivation, uncertainty or disinterest. At a great distance from educational ideal, learners are often treated like trivial machines even in traditional teaching. A certain input is supposed to produce a very specific output as clearly as possible. With tablets, precisely this tendency is reinforced. Very early on, Luhmann described the problem. “Of course, all mental systems, all children, all pupils, all learners are non-trivial machines. There is no doubt about that even for educators. If education wants to improve what it finds in human beings, then there is every reason to extend the non-trivial mode of functioning. This would mean above all: to increase the scope of the self in its development and to produce more freedom, that is, more unreliability” (Luhmann, 1987, p.193).

Schools do not want to change behavior at any price. With regard to the independent use of skills and knowledge, the acquisition of material should take place *voluntarily*, with as little use of force and dressage as possible. Therefore, a tactful communication of pedagogical expectations is important. The acquisition of material must not appear to be the pure execution of a power imbalance, nor as technical processing of information.<sup>11</sup> Tablets are associated with the hope of a voluntary and more controllable teaching of content, which also reduce disruptive effects. No one seems to fear, that it will tend to dissolve the unity of *educational instruction* and lead back to a separation between education and the teaching of content.<sup>12</sup>

Working with learning applications on tablets, means that the interaction in school classes becomes restricted. Expectations, which are communicated via programmed work assignments, will be

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<sup>10</sup> In relation to school, we can transitively say that subjects with less expectation of conformity also socialize less. Whereas in sport and school orchestra, where conformity becomes visible or audible, the socialization occasions increase (cf. Bautz, 2013).

<sup>11</sup> Both mediation considerations are particularly important in general education schools, which have to convey their goals without vocational plausibilities.

<sup>12</sup> As it was the case in the school system before the introduction of compulsory education (cf. Luhmann and Schorr, 1988, p.230f).

internalized by the learners without the constant social comparison with their peers in the class. Different levels of tolerance against error and performance expectations, depending on situation and personnel, remain intransparent without “classroom publicity”. Deviation from the programmed target must be experienced as individual failure. How other pupils learn, in regard of commitment, success and interest becomes invisible in digital classrooms. Maybe, that learning content and materials can be offered individually and more precisely, but what the individual does with that offer no longer becomes a role model, an example for help or a topic for education of others. Learning programs isolate learners from one another. Even if they raised cognitive performance standards, the skills would remain socially less operational. What is learned in schools still has to be used to a large extent in cooperative activities. Class-based instruction was introduced for this reason. Only similar contents, taught in class-public interactions, increase the chances of successfully participating in society. This is why general school attendance was introduced, and there is no unmitigated substitute for it yet.<sup>13</sup>

#### **IV Social expectation as a precondition of society**

What schools accomplish can now be placed in a still broader social context. Until now, years of classroom interactions have been a guarantee that shared learning experiences are a part to the pupil’s socialization. This enables every student to suspect what other students expect, however behaving toward it will formed. Not only learning with software change this process, which consists in expecting foreign expectations as a matter of course and forming one’s own based on them. Other new communication technologies with expectation and acceptance amplifiers make it possible to skip direct interactions.

Outside of familiar contexts such as family, friends, school, work team, but in anonymous one, such as with foreign persons, organizations or politics, the uncertainty of expectations usually grows. With the remote communication on the smartphone and the mobile availability of high computing power there is also a growing range of services designed to help us absorb uncertainties in social expectation. Profiled dating apps, messenger apps with pre-set suggestions for consensus-safe topics and voting apps for political elections replace social expectation structures where direct social experiences is lacking.<sup>14</sup> They store data, merge it, compare it, construct averages and offer selective suggestions. Expectations and needs are not only calculated, but also fulfilled with more success. The more users rely on such applications, the more data can be evaluated and included in behavioral recommendations, so more acceptance can be expected in individual cases. What normally appears as relief, we can less mentally absorb in the case of disappointment. Disappointments and resistances are farther possible, but it is more difficult to attribute them. What was the reason and how we can learn to deal with?

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<sup>13</sup> The entry into professional life is often described as a “practical shock” amid a critical view of schooling. The criticism is usually limited to the taught content, which is described as far removed from practice, and not to the forms of teaching.

<sup>14</sup> A few weeks before German elections are starting uncertain voters can use the “Wahl-O-Mat”, writing some opinions in a menu of different points of politics. Thereupon the program put out a ranking of the fittest political party for voting suggestion. Not only social technologies change and suspend socialization. Autonomously driving cars also suspend direct coordination in traffic and can be seen as a loss of interaction.

On the comfortable path of artificially intelligent *expectation support*, the ability to hold on an expectation after a disappointment gets lost. Because the guarantee of stability is shifting from personal trust in one's own social experiences to trust in a little transparent technology. Our trust in technology is based on its working, and if doesn't, can be fixed. That is the only way, we internalize our expectations in this relation. In our social environment that is statistically more and more recorded and predictable, technical decision aids promise more and more social success. Once the result is unsatisfactory, it becomes more difficult to hold on to the actual goal nevertheless. Because we can't overlook the reason for the dissent. Distrust and misunderstanding may increase and create the new need for more technical support and control.<sup>15</sup>

The ability to endure dissent and to find compromises is one of the most important achievements and preconditions for democratic processes. It depends on certain expectations and the readiness to learn. Where these capabilities decrease grow up the demand for technical and/or authoritarian solutions. IT-applications support our psychological ability of social coordination more and more and suspend it more and more. It is an evolutionary destiny, that unused achievements die. Schools are the only place in society where learning-together and theme-centred interaction is mandatory for years. So, they can delay or accelerate this process – not least depending on the rate of interaction in classrooms.

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<sup>15</sup> The process is self-reinforcing. The social need for conformity relies on artificially intelligent decision-making aids, and at the same time state prescriptions for order will be criticize. The fear about technical safeguards remains subliminal and will be redirected to the distance (China) cf. Kreye, "Berührungspunkte" in: "Süddeutsche Zeitung", 2018-11-24, p.13f.



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