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Learning the Law

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I. Introduction

1. The Puzzle

A healthy dose of illusions is a necessary ingredient of success. This is how psychologists explain pervasive over-optimism.¹ Within a fundamentally uncertain environment,² people would never seize promising opportunities if they fully realised the concomitant risks. Does the law follow the same postulate? Hardly any of the law's subjects know the text of the provisions that govern their conduct. Even less would they be able to handle this text properly, were they to get access to it. It takes a young lawyer several years of training to develop this ability. Nonetheless the law firmly believes that it is not feckless. Admittedly, there is serious talk about an implementation deficit,³ and part of this deficit might be explained by insufficient knowledge or the insufficient understanding of the pertinent rules. But nobody believes implementation to be insufficient across the board.

Some derivatives are added to this original puzzle. Law is rarely taught to the general public, with driving school being the most prominent exception. Moreover, only few laypersons remember ever having learnt any law. What they do recall is confined to a narrow set of rules that have become salient, like the rules that have been held against them in a conflict. Also, different countries have different laws,⁴ all of which govern their respective constituencies. Consequently, abiding by the law cannot be an innate human ability. However, no two individuals have an identical childhood or adolescence. Why is it that, nonetheless, one and the same set of legal rules can effectively govern the entire population?

This paper is convinced that the analogy between the success of over-optimism in private life and that in law is unwarranted. The puzzles can be solved by understanding that the law is learnt in indirect ways. Roughly, the argument is as follows: Most of the indirect learning of the law takes place in childhood and adolescence. Here, this is called the primary learning of the law. Such primary learning is part and parcel of human development, or ontogenesis. Almost from the day of birth on, the child passes through consecutive stages that eventually lead to what is referred to here as normative proficiency. The individual learns how to properly handle normative demands. The further the adolescent progresses, the more this general ability and attitude is filled with concrete normative expectations that are derived from the law. Typically, such expectations do not reach the young citizen in a technical legal form. They are translated into contextual behavioural expectations. Occasionally, direct and explicit instruction takes place. But normally, the new citizen figures out what he is expected to do by inference. This can be by trial and error, but more often it occurs through observation. Institutions are highly important in the process of transmitting both elements: the procedural knowledge, i.e. normative proficiency; and the declarative knowledge,

1 BAZERMAN Judgment in Managerial Decision Making (2002) 37-39.

2 On the dispute over the appropriate definition of reality, see GIGERENZER, TODD and ABC RESEARCH GROUP Simple Heuristics (1999) and more generally THOMPSON, ELLIS and WILDAVSKY Cultural Theory (1990)

3 Key texts are WINTER Vollzugsdefizit (1975); MAYNTZ Implementation (1980); WINDHOFF-HÉRITIER Politikimplementation (1980); MAYNTZ in Mayntz (1983)

4 For an overview of the diversity, see ZWEIGERT and KÖTZ Comparative Law (1998)

i.e. the concrete normative expectations. But formal, legal institutions do only play a subsidiary role in this transmission. The core responsibility is with institutions like the family, kindergarten and school, professional training and social peer groups. Normative expectations are also transmitted by a multitude of more specialised informal institutions, like the marketing activities of industry. This is not to say that the law is unable to improve its own implementation. But it cannot do so directly. It must embark on what is here called design for learning.

Based on this, explaining what seems easy becomes most difficult: the secondary learning of the law. At first sight it may appear demanding to explain how an adolescent figures out what the law expects him to do without ever reading a line of code. In comparison to this, it seems much easier to explain how legal reform reaches its addressees. It is typically widely covered in the media, so that knowledge transmission should be a lesser concern. But if the primary learning of the law almost entirely relies on inference, rearranging the set of mentally stored normative expectations is no mean feat for the individual. Moreover it presupposes the highest degree of normative proficiency: an understanding of the historical contingency of normative expectations. Finally, the better the individual has been at handling the previous set of normative expectations, the harder it will be for him to integrate new elements into his well-trained responses.

From such incremental learning of new legal expectations in adults, a third situation is to be distinguished. The prototypical illustration is immigration. An adult arrives in a different legal order. Psychologically, the individual is in a similar situation if his social context fundamentally changes. This may be due to the overthrow of a political regime.⁵ Or the individual may also have lost his job and feel obliged to change his profession. Or he may have become a member of a new religious community, say in order to support his spouse. In such situations, just adding a number of new normative expectations to the behavioural repertoire will not do. The individual must undergo what social scientists call fundamental learning. His situation is pretty similar to that of his early life, when he had to find his place in society. But this may be much harder for the adult for two reasons. Neurological findings show that the mature brain has lost much of its plasticity. Moreover, it may be necessary to eradicate or overwrite previously learnt routines for handling normative expectations of legal provenance. Specifically, the ability to engage in fundamental learning of the law later in life crucially depends on how contextual normative proficiency actually is. The less contextual it is, the more room is there for later adaptation to fundamental change.

2. Definition of Learning

From the foregoing it follows that a narrow definition of learning would not be appropriate for this paper. Specifically, learning (the law) involves much more than the mere acquisition of information.⁶ Actually, for most addressees it would even be useless to know the wording of the pertinent legal rules, or to gain access to the pertinent legal literature. What they need is a transposition of

5 For an illustrative account, see GOERLICH in *Zeitschrift für Gesetzgebung* (1992).

6 HODGSON in *Journal of Economic Literature* (1998) 175.

the legal rule into a behavioural expectation they can understand. Typically this will also mean that the abstract legal rule must be enriched with elements from the context within which it is to be applied.⁷ Moreover, just knowing the normative expectation is not enough. The addressee must also be likely to behave accordingly. The expectation must therefore be integrated into his behavioural repertoire, and it must be made likely that it will be retrieved in appropriate moments and in appropriate ways.

This makes for a demanding learning object. It has informational components. A further ingredient is a sufficient preparedness for input from the environment. Without this, the individual might overlook situations that call for behaving according to a given normative expectation.⁸ But the individual also needs the ability to apply the learned categories to the context at hand.⁹ This often involves the ability to customise them. Moreover, he must be able and willing to gradually enrich his behavioural repertoire,¹⁰ and to readapt to changed circumstances.¹¹ The shortest definition that encompasses all these elements reads: "Learning is a process by which long-lasting changes occur in behavioural potential as a result of experience".¹²

3. Legal Discussion

The behavioural analysis of the law is fairly new,¹³ predecessors in the 19th-century notwithstanding.¹⁴ Apparently in this literature, as of yet, nobody has linked the law to neurological and psychological work on learning.¹⁵ But there has been an awareness of the distinction between the legal professional and the law's addressees, both in legal doctrine and in legal theory.

In doctrine, a concept from German criminal law is revealing. Under German law, nobody can be sentenced only for having objectively committed a crime. The defendant must also be proven to have done so on purpose.¹⁶ This has faced German lawyers with a challenge: what should they do if the defendant claims that he did not know his behaviour to be illegal? The majority view in German law responds by making a distinction. It splits up the elements of the provisions of crimi-

7 Cf. BANDURA *Social Foundations* (1986) 51: "Learning is largely an information-processing activity in which information about the structure of behaviour and about environmental events is transformed into symbolic representations that serve as guides for action"; see also HODGSON in *Journal of Economic Literature* (1998) 175 and DONALD in Renfrew and Scarre (1999) 12. He speaks of a "shared representational culture".

8 The point is stressed by BANDURA *Social Foundations* (1986) 51-55.

9 HEBB *Organisation of Behavior* (1949) 117 f.

10 MANTZAVINOS *Individuals, Institutions, and Markets* (2001) 22; see also HEBB *Organisation of Behavior* (1949) 208: "a permanent change of responsiveness".

11 The latter point is stressed by VON HAYEK *Sensory Order* (1952)

12 ANDERSON *Learning* (2000) 4; see also HEBB *Organisation of Behavior* (1949) 180: "learning [...] consists of a lasting change of facilitations between the activities of specific neural structures"; HILGARD and MARQUIS *Conditioning and Learning* (1961) 6: "a relatively permanent change in behavioural potentiality that occurs as a result of reinforced practice".

13 Characteristic pieces include KORNHAUSER in *Rechtstheorie* (2000); KOROBKIN and ULEN in *California Law Review* (2000); SUNSTEIN *Behavioral Law and Economics* (2000)

14 Most prominent are ZITELMANN *Irrtum* (1879); JHERING in *Österreichische Juristenzeitung* (1884); JHERING *Der Zweck im Recht* (1904)

15 Work on learning the law from other disciplinary traditions is reported below.

16 If the pertinent provision of the criminal code allows for that, proof of negligence may be sufficient too.

nal law. If they are "descriptive", the defendant must have had full knowledge. With respect to "normative" elements, however, it suffices to show his ability to get at the gist of the provision by what is called "a parallel assessment in the sphere of laypeople".¹⁷ This distinction is based on the conviction that otherwise only lawyers could commit criminal offences.¹⁸ But this construct is also meant to uphold a factual belief: at least by way of parallel assessment, the citizens do indeed know the law.¹⁹

In legal theory, most writers hold the same conviction: in order for the law to effectively guide behaviour, addressees must know the rules.²⁰ Some consequently admonish the legislator and the administrators to use easily understandable language.²¹ The information of addressees is a key element in theoretical concepts about the impact of the law on behaviour.²² But there are critics of this idea too.²³ Most importantly, it has been empirically demonstrated that the degree of knowledge of law is not correlated with a high degree of implementation. This holds for fare dodging, tax evasion, and illicit smoking.²⁴

Many writers have wondered why people abide by obnoxious legal provisions.²⁵ They point to the fact that human behaviour is guided by custom, rather than by law.²⁶ Most people, they claim, see the law as a rule-book, much like the ones used in tennis or bridge. It is consulted only in cases of doubt or dispute.²⁷ The law typically has an indirect effect on behaviour, resulting from people's

17 "Parallelwertung in der Laiensphäre". The term was coined by MEZGER *Strafrecht* (1949) 328. It is now the majority view in jurisprudence, *Bundesgerichtshof* (in Strafsachen) 18.3.1952, BGHSt [official collection] 2, 194, 201; representatives of the majority view in doctrine include JESCHECK and WEIGEND *Lehrbuch* (1996) 269 f., 295; SCHÖNKE and SCHRÖDER *Strafgesetzbuch* (2001) -Cramer/Sternberg-Lieben § 15 StGB, R 39; a critical voice is NEUMANN and ALBRECHT *Strafgesetzbuch* (2000) -Puppe § 16 StGB, R 44-86, in particular R 49-55.

18 JESCHECK and WEIGEND *Lehrbuch* (1996) 295.

19 *Bundesgerichtshof* 18.3.1952, BGHSt 2, 194, 201: "Voraussetzung dafür, dass der Mensch sich in freier, verantwortlicher, sittlicher Selbstbestimmung für das Recht und gegen das Unrecht entscheidet, ist die Kenntnis von Recht und Unrecht"; see also NEUMANN and ALBRECHT *Strafgesetzbuch* (2000) -Puppe § 16 StGB, R 53: "Der geschäftsfähige Bürger besitzt in aller Regel die erforderlichen Vorstellungen über diejenigen Rechte, Rechtsverhältnisse und Institutionen, mit denen er zu tun hat", see also *id.* R 78.

20 From the many voices see only AUBERT *Sociology of Law* (1969) 117; HOGAN and HENLEY in *Law and Society Review* (1970) 142; MAYNTZ in *Irle* (1984) 15.

21 See e.g. WÜRTEMBERGER *Akzeptanz* (1996) 89.

22 This is prominent in the concept by OPP in *Kriminologisches Journal* (1971).

23 One of the most outspoken is LUHMANN *Legitimation durch Verfahren* (1969) 214 f.

24 DIEKMANN *Befolgung von Gesetzen* (1980) in particular 125 f. and 138.

25 See e.g. JONES *The Efficacy of Law* (1969); FEELEY in *Law and Society Review* (1970); DIEKMANN *Befolgung von Gesetzen* (1980); TYLER *Why People Obey the Law* (1990)

26 This claim goes back to SUMNER *Folkways* (1907) for a modern voice see SCHLICHT *Custom* (1998) 203 and *passim*.

27 FRIEDMAN *Legal System* (1975) 28 ff..

willingness to follow prevalent custom.²⁸ There is also a long discussion about the biological roots of a human “sense of justice” (*Rechtsgefühl*).²⁹

Finally, a fairly recent strand in the American discussion should be mentioned. Under the heading of “expressive law”, it stresses that legal provisions have informative value. They help addressees in equilibrium selection, and in cognitive orientation more generally.³⁰

4. Bypassing Individual Learning

It is frequent for those analysing legal problems from the vantage point of one of the social sciences to find that the law knew how to deal with the problems confronting them all along. Typically, legal doctrine cannot offer sophisticated conceptual tools. But it has found highly practical solutions. Such solutions are also recognized by those applying neurological and psychological knowledge about learning to the law. In contexts where learning the law might be problematic, legal designers have often been able to bypass the need for individuals to learn the law at all. The following can therefore also be read as illustrating a design for learning – ironically one which makes learning unnecessary for the ordinary citizen.³¹

Such intervention is particularly likely in two situations. In the first case, a novel regulatory demand cannot be postponed until the population has been through a time-consuming learning period. In the second case, the legal rule governs situations that do not lend themselves to sufficiently reliable learning. There are many reasons that this might be the case. The domain may be perceived as exceptional by the standard addressee, implying that he cannot easily build on previously stored behavioural programmes. Or it may be unlikely that the individual addressee will be able to sufficiently practise the rule before he comes into situations that are thought by the law to be critical.

In principle individual learning can be bypassed in three ways: by switching to a different governance tool, by switching to a different addressee, or by redefining the governance task. In regulatory jargon, regulation by law is usually called command-and-control regulation.³² The term implies two separate stages: rule generation and rule application. Consequently, all command-and-control regulation runs the risk of an implementation deficit:³³ addressees may evade the rule

28 HIRSCH in *Juristenzeitung* (1982) 46 f.: The law is followed, “weil man im Vertrauen auf das nichtbewusste, stammesgeschichtlich erworbene und angeborene und das im Wege der Erziehung und des allgemeinen Brauchs erworbenen Wissens bemüht ist, mit dem Strom zu schwimmen“; cf. also the theory of FRIEDMAN *Legal System* (1975) on the effectivity of law. According to him, it is dependent on three factors: sanctions, social influence, and internalised values.

29 RÜMELIN in *Rümelin* (1875); JHERING in *Österreichische Juristenzeitung* (1884); REHBINDER in *Gruter and Rehbinder* (1983); WUKETIS in *Hof, Kummer, Weingart and Maasen* (1994); TEUCHERT-NOODT and SCHMITZ in *Lampe* (1997); VOLAND in *Lampe* (1997)

30 From the rich literature, see only ADLER in *University of Pennsylvania Law Review* (2000); MCADAMS in *Virginia Law Review* (2000); BOHNET and COOTER *Expressive Law* (2001); MCADAMS and NADLER *Legal Compliance* (2003)

31 STEFAN MAGEN pointed me to this interpretation.

32 See e.g. HAHN and AXTELL in *Journal of Regulatory Economics* (1995).

33 See again the references in note 3.

when it comes to applying it. The risk disappears if the governance tool is self-enforcing. The self-enforcing character is the most prominent feature of regulation by technical code.³⁴ It is, for instance, characteristic of Internet regulation.

Swapping addressees is frequent in any regulation that involves physical technology. A graphic example is environmental law. There are only very few rules of environmental law that directly address individuals. Whenever possible, environmental law targets industry. This does not only hold if industry was originally an independent source of pollution. Government often also targets industry if the environmental problem originates in households. Exhaust fumes are one example. Government reduces them by making it highly unlikely that people build or convert the mechanics of their own cars. Consequently, it suffices for government to impose stringent technical standards on the small number of car producers. The standardisation of technical equipment supplants any need for individuals to learn the law. A similar effect is achieved by obligating members of the general public to rely on the services of professional intermediaries. Consequently, newly married couples need not precariously learn how to behave in case they split up. If their marriage breaks up, they are legally obliged to see a professional lawyer.

Finally, government can redefine the regulatory task such that learning the pertinent rules is no longer necessary. This is how one can interpret a frequent strategy in technical regulation. It switches from *ex post* to *ex ante* regulation.³⁵ Regulatory addressees are obliged to seek governmental approval before they take action. Again, environmental law is particularly advanced in this respect. Here, it often is not even enough to get approval for the entire project. Individual steps of implementation require separate permits.³⁶

Not only government is able to eschew individual learning. Regulatees also have recourse to this strategy, for example, if they deliberately do not inform themselves about the law in force before taking action.³⁷ This is a frequent practise, as demonstrated by the fact that hardly any tenant precisely knows his rental rights. Likewise, hardly any buyer reads the standard form before signing the contract. This strategy of waiting to generate information until the contract visibly becomes foul implies trust,³⁸ both in the fairness of the pertinent legal rules, and of the court system that applies them.

34 The point is forcefully made by LESSIG Code (1999) see also REIDENBERG in Emory Law Journal (1996); BOYLE in University of Cincinnati Law Review (1997); REIDENBERG in Texas Law Review (1998).

35 These are technical terms in the European regulation of telecommunications, see e.g. Directive 2002/21/EC of the European Parliament and the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive), consideration 27 and *passim*, Official Journal 2002 L 108/33; from the academic discussion see also SHAVELL in Rand Journal of Economics (1984).

36 More on the situation in German administrative law from ENGEL Verwaltungsakt (1992) 72-77.

37 SCHLICHT Custom (1998) 27; see also again FRIEDMAN Legal System (1975) 28 ff., who interprets the law as a rule book, like the ones used in games.

38 Trust has become a fashionable topic in the social sciences, see only ENGEL Vertrauen (1999); HARDIN Trust and Trustworthiness (2002); LAHNO Der Begriff des Vertrauens (2002); BRENNAN, GÜTH and KLIEMT in Journal of Institutional and Theoretical Economics (2003); GERSBACH in Journal of Institutional and Theoretical Economics (2003).

5. Scope of the Argument

Critics of earlier versions of this paper have repeatedly discussed the scope of the argument. Some believed that what is said here only applies to the acquisition of social norms, not to the acquisition of legal rules.³⁹ The argument defended here is squarely opposed to this. It does not deny that social norms and legal rules have different sources. Often, addressees will be vaguely aware of this difference. But this paper claims that individuals integrate the normative expectations of legal provenance into their behavioural programs in the same basic way that they integrate social norms.

Other critics accepted the line of reasoning for the ordinary citizen, but not for professionals⁴⁰ or for normatively salient minorities, like criminals.⁴¹ A related criticism found the argument convincing for restraining rules, but not for enabling rules.⁴² This criticism can be read in two different ways. In the first reading, the crucial point regards incentives. Since knowing the pertinent legal rules matters more for these addressees and in these situations, the critics expect addressees to invest more in learning the rules. This seems plausible. But it does not refute a learning perspective. Rather, the motivation for learning increases. Addressees elaborate the normative expectations better; they use them more often and hence retrieve them quicker and more reliably from memory.⁴³

In an alternative reading, these critics deny that the learning argument applies to rules that addressees see as part of the opportunity structure. If one wants to play a game, one had better know its rules – so the argument goes. Again, the argument makes sense. But still, addressees do not undergo legal training. And even firms do not permanently consult professional lawyers for advice. If individuals look up the wording of statutes, they will be puzzled, not elucidated. Often they will not even find the pertinent provisions, since they are dispersed in a multitude of legal instruments. Even in these contexts, the law does not typically reach its addressees directly. All they know are translations of complex legal problems into heavily contextualised, fairly simple rules. These translations are learned the same way as any normative expectation. And individuals construct them as normative. Or to quote *Elinor Ostrom*: the may space is (mentally) defined by must and must-not rules. Put differently, abiding by the rules of the game is a normative expectation, no less than the expectation not to steal or kill. Or the other way round: all normative expectations can be seen as elements of the opportunity structure. But this interpretation does not exile them from the normative camp.

39 Most prominently VICTOR VANBERG and ULRICH WITT.

40 MARTIN BECKENKAMP.

41 WERNER GÜTH.

42 ELINOR OSTROM, FRANCESCO PARISI.

43 More on memory below II.2 c.

II. Primary Learning

1. Introduction

Learning requires a good deal of effort on the side of legal addressees, but also on the side of society if it wishes to use the law as a governance tool. Why has nature made social interaction so cumbersome? Indeed, other species like bees or ants organise complex social interaction with very little learning. Doing the right thing in the right moment is simply part of their genetic endowment. Not so for humans. Many observers even believe that the extreme plasticity of behavioural dispositions is the most important difference between man and animals.⁴⁴ They explain it on evolutionary grounds.⁴⁵ Going through a lengthy period of learning is an investment that pays. It has allowed human genes to spread, since humanity is extremely powerful in adapting to an ever-changing environment.⁴⁶ Therefore, learning is pervasive in humans. This makes the claim less surprising that the law reaches its addressees by way of learning.

This paper is ultimately interested in a very specific learning object: normative expectations originating in the law. But the paper claims that this object is learned in ways that are not principally different from the way other learning objects are learned. Consequently, it starts with a presentation of the necessary elements of general learning theory (2). From this, it derives implications for institutional analysis in general (3) and for the learning of the law in particular (4).

Specifically, this section is confined to primary learning. This term is best characterised negatively. Primary learning ends where previously learned abilities must be overcome, or where previously learned pieces of knowledge must be replaced. The individual is no longer in the business of adaptation. He must engage in readaptation. At closer sight, this borderline is not always easy to draw. The environment may change while the individual is still engaged in generating his initial understanding of it: is this already secondary learning? Some experiences can come very late in an individual's life, like a retired person's first exposure to a computer: is this still primary learning? Moreover, what may seem secondary at a more basic, say neurobiological, level may well be primary at a higher, psychological or social level. If it is, primary learning at the neurobiological level has generated an ability that is exploited for primary learning at the psychological or social level at a somewhat later moment in life. Consequently, the distinction between primary and secondary learning in actual fact is often pragmatic rather than categorical. As a rule of thumb, if the contrary is not stated, in this paper learning in adults is seen as secondary, the learning of children and adolescents is seen as primary.

44 For a fascinating history of this idea in the neurosciences see GLIMCHER *Neuroeconomics* (2003) For a voice from psychology see ANDERSON *Learning* (2000) 1. In cognitive science, the point is made by TURNER *Cognitive Dimensions* (2001) 52.

45 For a comprehensive treatment of evolutionary thinking at the crossroads of behavioural and social sciences, see BARKOW, COSMIDES and TOOBY *Adapted Mind* (1992)

46 SINGER in *Universitas* (2001) 886; see also HEBB *Organisation of Behavior* (1949) 111 f., 123, 125, 166.

2. Learning Theory

Primary learning, both in general and with respect to the law, can be analysed at four different levels. Neurobiology (a), developmental psychology (b), the psychology of learning (c), and social scientific thought on learning (d) all have contributions to make. Consequently, insights from many disciplines can be brought to bear on the issue. One might think that this multi-level approach is unnecessarily disturbing. Why not just dig as deeply as necessary, and directly relate this to the law? The answer touches upon a fundamental insight from the philosophy of sciences,⁴⁷ or from epistemology more generally.⁴⁸ We cannot just see, much less explain, reality with one set of conceptual tools. Consequently, different levels of analysis allow us to see different aspects of what is in reality one uniform phenomenon.⁴⁹ Put differently, each of these levels can best be understood as exhibiting a certain degree of autonomy vis-à-vis the respective preceding and succeeding level.

Since this paper does not only address behavioural researchers, it seems necessary to first sketch out the behavioural positions drawn upon in the later parts of the paper.

a. *Neurobiology*

Among all species, man has by far the largest brain.⁵⁰ It holds about 10^{11} cells, with about 10^{14} synaptic links.⁵¹ This allows humans to handle an extremely large amount of information.⁵² They do so by parallel processing.⁵³ Little of this capacity is preconfigured in the neonate.⁵⁴ The genes determine no more than a rough sketch of how the brain can be used.⁵⁵ All the rest has to be figured out by the child in his interaction with his specific environment.⁵⁶ The development of the individual brain thus results from a dialogue between the genome and the environment.⁵⁷

In the neonate, many more links between nerve cells are prepared than will be used later in life.⁵⁸ Development is thus basically a selection exercise.⁵⁹ Only links that prove helpful in making sense out of and making an impact on the environment are sustained. All the remaining links are physically destroyed.⁶⁰ As a result, only about a third of the initially prepared links survive.⁶¹

47 Fundamental KUHN Scientific Revolutions (1962)

48 Basic ALBERT Kritische Praxis (1978)

49 For a more elaborate answer see ENGEL Predictability (2004) part B I 3.

50 For a comparison see ANDERSON Learning (2000) Figure 1.13.

51 SINGER in Klinke and Silbernagl (2003) 745.

52 SINGER in Schmidt (1991) 103.

53 Ibid.

54 Actually, even the physical development of the brain is not finished at birth (SINGER in Klinke and Silbernagl (2003) 746). It only ends in puberty (SINGER in Universitas (2001) 884 f..

55 SINGER in Schmidt (1991) 100 and 104.

56 SINGER in Klinke and Silbernagl (2003) 746.

57 SINGER in Schmidt (1991) 100.

58 Ibid. in 100 and 104.

59 SINGER in Klinke and Silbernagl (2003) 744 f.

60 SINGER in Schmidt (1991) 100 and 104.

61 SINGER in Universitas (2001) 883 f..

Since the brain of the neonate is virtually free of information about the environment, learning is key to preparing the child for life.⁶² It is not done in any organised manner, but by way of association.⁶³ Life thus starts with trial and error.⁶⁴ It allows the brain to engage in self-organisation.⁶⁵ The brain in principle works like a statistical machine. It keeps track of how often cells are activated at the same point of time. This synchrony then results in the stabilization of some links.⁶⁶

Although the brain starts with very little information about the environment, it is not a blank slate. The brain of the neonate is equipped with a small amount of genetically transmitted information.⁶⁷ This allows the neonate to engage in a hermeneutical exercise.⁶⁸ The more the brain advances, i.e. the higher the degree of child development, the more it can assimilate knowledge from its own experiences. This explains why the brain can indeed be said to self-organise in response to its respective environment.⁶⁹ But even later in life, not all associations are equally likely. The genetic information leads to what has been called an associative bias.⁷⁰ Associations are not pre-determined. But it is more likely that information from the environment will generate one type of association, rather than another. Moreover, the brain does not attach equal importance to all input from the senses. It has the ability to centrally control which input gets a chance to influence mental processing and hence brain development.⁷¹ This explains why attention matters,⁷² and how motivation has an impact on the direction of learning.⁷³

Learning processes differ categorically between children and adults. There is a categorical difference between primary and secondary learning in the neurological understanding of the terms.⁷⁴ There are two reasons for this. While the adult brain is permanently learning, it is very rare for this learning to result in the establishment of new or in the destruction of previous links between

62 Ibid. in 886.

63 HEBB *Organisation of Behavior* (1949) 127, see also 102.

64 SINGER in Schmidt (1991) 100.

65 Ibid. in 103.

66 SINGER in *Neuron* (1999).

67 Cf. ANDERSON *Learning* (2000) 97, who speaks of "instinctive drift".

68 The work of those doing brain research can thus be linked to a long-standing methodological tradition in literature, theology, the law, and any other text-based science. In these fields, they all struggle with how to give a text meaning. The answer given by hermeneutics in essence says that the reader can only understand a text if he already knows something about it. He must start from some hypothesis about what this text might mean. The graphic technical term in German is *Vorwissen*, or previous knowledge. It is certainly no coincidence that SINGER in Schmidt (1991) 115 and 117; SINGER in *Universitas* (2001) 887 f. uses exactly this term to describe the importance of genetically transmitted information. From the rich literature on hermeneutics, see only the classic text by DILTHEY in *Dilthey* (1923) and ESSER *Vorverständnis* (1970); ENGISCH *Einführung* (1983) for legal applications.

69 SINGER in Schmidt (1991) 104.

70 ANDERSON *Learning* (2000) 61 and 106 for humans specifically. Again this is much more pronounced in animals than in humans. Associative bias might also explain why some deviations from the norms of rational choice theory basically resist training, even if overcoming them would be beneficial for the individual in some contexts; see e.g. ARKES, FAUST, GUILMETTE and HART in *Journal of Applied Psychology* (1988) on what is known as hindsight bias.

71 SINGER in Schmidt (1991) 108; see also SINGER in *Universitas* (2001) 887 f..

72 HEBB *Organisation of Behavior* (1949) 141, see also 152; SINGER in Schmidt (1991) 108.

73 HEBB *Organisation of Behavior* (1949) 173-179; SINGER in Schmidt (1991) 108.

74 HEBB *Organisation of Behavior* (1949) 108, see also 289-294 on the different effects of brain injury; SINGER in Schmidt (1991) 97.

cells.⁷⁵ Moreover, adult learning no longer has an impact on a fresh mind. It is simultaneously privileged and constrained by the fact that it must build on the outcomes of primary learning. To a substantial degree, these outcomes are hardwired by the processes described above.⁷⁶

Finally, the brain is not permanently prepared to learn just any contents whatsoever. It has critical phases within which certain kinds of contents must be learned.⁷⁷ Consequently, in order to develop its full potential, the brain must be presented with stimulus material from the environment during these critical phases.⁷⁸ If this input is missing, it is difficult, if not impossible, to catch up later.⁷⁹ This also holds for the latest step in the development of the human brain. It concerns the prefrontal cortex. This part of the brain gives humans the capacity for their most advanced social skills, like the ability to understand their own existence in time, to postpone reactions, to develop an idea of the self, or to find one's place in society.⁸⁰ With adolescence, the development of this part of the brain slowly ends.⁸¹

b. Developmental Psychology

Developmental psychologists explain how the development of the brain translates itself into behavioural patterns in the child. In line with a different research question, however, developmental psychologists do not model development by the same periods as neurobiologists. Specifically, their area of interest ends much later, in young adulthood.⁸² Or in the terminology used here: in a developmental perspective, primary learning ends once an individual is fully developed. This is later than the end of primary learning from a neurological perspective.

Many developmentalists see themselves as constructivists, rather than individualists.⁸³ Some define development as enculturation.⁸⁴ Others see development as the progressive enrichment of the child's relations with others.⁸⁵ Both are valuable points of view. This paper, however, takes a more individualistic position. While not neglecting that development occurs in interaction with the social environment, this paper sees development as a problem for the developing child. From such a position, two things are easier: understanding the translations from the neurobiological to the psychological and the social levels; and, most importantly, understanding the implications for institutional analysis and design.

75 SINGER in Klinke and Silbernagl (2003) 750.

76 SINGER in Schmidt (1991) 97.

77 Ibid. in 748.

78 SINGER in Universitas (2001) 887 ff..

79 Ibid. in 892, 1011 f.

80 Ibid. in 1011.

81 Ibid. in .

82 For an illustration, see the observations reported in SELMAN *Soziales Verstehen* (1984) 147-203.

83 A characteristic voice is CHAPMAN *Constructive Evolution* (1988)

84 E.g. ASTINGTON and OLSON in *Human Development* (1995).

85 For a characteristic treatment, see CARPENDALE and LEWIS in *Behavioral and Brain Sciences* (2004).

For developmental psychology, the distinction between assimilation and accommodation is crucial.⁸⁶ Whenever possible, the child tries to make sense of a new element from the environment by assimilating it to categories it already possesses. If an experience does not fit those categories, it may be ignored for the time being.⁸⁷ But if the child pays attention, the experience inconsistent with his earlier understanding may trigger a leap forward in his mental development.⁸⁸ Such leaps are labelled accommodation. They make for the fact that child development occurs in discernible stages, rather than as part of a continuous process.⁸⁹

There are overlapping, partly even competing ways of conceptualising these stages.⁹⁰ This analysis builds on the typology offered by ROBERT L. SELMAN.⁹¹ He takes the development of social cognition as the organising criterion. This makes his model particularly conducive to understanding the learning of the law.

Selman discerns five stages. Stage 0 is called undifferentiated. The child sees no difference between the physical and the psychological and is egocentric. Stage 1 brings differentiation between the physical and the psychological. But the child remains purely subjective. Stage 2 is self-reflective and reciprocal. If the child observes another person, he is able to see the situation from the other person's angle. He assumes that the other person will do the same. At stage 3, the child attributes a personality to his interaction partners, which he assumes to be stable over time and consistent. At final stage 4, the adolescent gains an understanding of the existence of depth psychology, and of social symbols.⁹²

The stages play themselves out in many features of social communication. At stage 0, the individual is seen as a physical entity. At stage 1, the individual becomes an intentional subject. What another person says is taken at face value. At stage 2, the child understands that others can purposefully hide their motives. At stage 3, ambivalence and self-deception are seen as a possibility. At stage 4, the others are assessed as complex psychological entities that can also be driven by subconscious forces.⁹³

The further development progresses, the more differentiated the picture of society is. At stage 0, society is just the physical community. At stage 1, society is the sum of unidirectional relations. At stage 2, it becomes the sum of reciprocal partnerships. At stage 3, the whole is more than the

86 It has been developed by JEAN PIAGET; for a summary presentation of his thinking see WADSWORTH Piaget (1996)

87 SELMAN *Soziales Verstehen* (1984) 77.

88 Ibid. 76. This is not to say that mere attention is enough to achieve a new developmental stage. Brain development must have progressed sufficiently. And developmentalists think that stages are consecutive. Consequently, the child can reach the ultimate stages only by going through the intermediate stages.

89 Ibid. 71 f., 74. As is almost inevitable with modelling, there are views that oppose the stages metaphor, e.g. CARPENDALE in *Developmental Research* (2000).

90 The most important typologies have been offered by PIAGET and GABAIN *Moral Judgement* (1932); MEAD *Mind, Self and Society* (1934); KOHLBERG *Moral Development* (1981)

91 SELMAN *Soziales Verstehen* (1984)

92 Ibid. 50-55.

93 Ibid. 147-153.

parts, and society becomes a homogeneous community. At final stage 4, society is seen as organised and pluralistic.⁹⁴

Likewise, the understanding of leadership becomes more differentiated over time. At stage 0, leadership is characterised by physical force. At stage 1, the influence can be psychological, but it is expected to be authoritarian. At stage 2, the child understands that a group can be governed by mediation. At stage 3, the idea of integration, i.e. of forging a sense of community, is added. Finally at stage 4, the adolescent understands pluralistic group organisation, and leadership shared by several persons who assume different roles.⁹⁵

Strategies for dissolving conflict constitute a further aspect of human development. At stage 0, physical force is the only conceivable resource. At stage 1, the solution to conflict can only be unilaterally achieved by taking back the original injury, or by compensating the victim. At stage 2, cooperative ways of restoring peace are conceivable. This is due to the idea that both parties may play a role in generating the conflict. At stage 3, the child realizes that conflicts that are overcome can be a means for generating friendship. Finally, at stage 4, the adolescent is able to accept mere symbolic action as a way of ending conflict.⁹⁶

Finally, different ways of understanding punishment correspond to the different developmental stages. At the original stage 0, the neonate sees punishment as an automatic reaction. At stage 1, he understands that punishment can serve different purposes. It can be a pedagogical tool, a way of protecting the child from danger, and a means of restoring the moral balance. At stage 2, punishment can also be interpreted as a form of communication between the parents and the child. The child also understands that parents can make mistakes. At stage 3, it becomes conceivable that punishment is a way for parents to pursue their own interest in keeping the family under control. At stage 4, the adolescent sees that when the parents punish them, they might be driven by deep psychological forces, rather than conscious reasoning.⁹⁷

c. Learning Psychology

Due to the make-up of the human brain, brain development is learning. Moreover, learning in the adult is necessarily secondary learning, which builds on primary learning during development. Put differently, adults do not just add items to a body of knowledge; they perforce integrate them with the idiosyncratic outcomes of previous learning. For these reasons, the tendency of learning psychologists to isolate single learning events later in life is a bit artificial.⁹⁸ But their findings can help us better understand what happens during primary learning in general, and during the primary learning of the law in particular.

94 Ibid. 161-169.

95 Ibid. 126-134.

96 Ibid. 116-126.

97 Ibid. 134-146.

98 A noticeable exception is BANDURA Social Learning Theory (1977) 29-34.

The neonate must learn about everything: how to use his limbs, how to recognise distances by using both eyes, how to understand language. Since the child starts life with so little previous knowledge, it must mostly learn by inference.⁹⁹ Learning psychologists have demonstrated the power of inference, even in the absence of any conscious cognitive processing.¹⁰⁰ The proverbial PAVLOVIAN dog detects the correlation between food delivery and the sound of the bell. Its organism provisionally interprets it as causation. When it hears the bell, it produces saliva in anticipation of the goodies to come. If this effort has been futile too often, the previous expectation changes. The conditioned response is extinguished, as learning psychologists put it.¹⁰¹ An alternative to this classic conditioning is operant conditioning.¹⁰² The organism responds to the experience that some kind of behaviour is consistently followed by positive or negative reinforcement.¹⁰³

In their efforts to understand the world surrounding them, humans can rely on these subconscious learning tools as well. There is no reason to disparage them. Experiments with monkeys have demonstrated that they have an astounding capacity to subconsciously handle huge amounts of information in a nearly perfectly statistical way.¹⁰⁴ Humans are even better at this.¹⁰⁵ But humans also possess powerful tools for consciously handling information. This capacity enables them to engage in planned experimentation.¹⁰⁶ Moreover, if the environment imposes experience on them, they can use it to learn in a reflective manner.¹⁰⁷ And humans possess language and the capacity for abstract reasoning. This opens up an avenue for explicit instruction. Instruction makes it possible to reduce or even eliminate the inferential component in learning.¹⁰⁸ Experiences others have previously had can thereby be transmitted. The species can accumulate a stock of knowledge and hand it down from generation to generation.

Instruction is, however, not the only tool for transmitting knowledge across individuals. A powerful alternative is learning by observation.¹⁰⁹ For instance, in a Guatemalan clan, young girls never

99 HEBB *Organisation of Behavior* (1949) offers a fascinating account of this.

100 More from DOMJAN *Learning* (1998)

101 PAVLOV and ANREP *Reflexes* (1927) for a modern treatment of classic conditioning, see ANDERSON *Learning* (2000) chapter 2.

102 The classic source is THORNDIKE *Animal Intelligence* (1898); see also SKINNER *Behaviour of Organisms* (1938) and ANDERSON *Learning* (2000) chapter 3 for a modern treatment.

103 Conceptually, the difference between classic and operant conditioning is the following: in classic conditioning, the unconditioned stimulus is contingent upon the conditioned stimulus only. In operant conditioning, the reinforcer (i.e. the unconditioned stimulus) is contingent upon the conjunction of the conditioned stimulus and the conditioned response, ANDERSON *Learning* (2000) 79.

104 For a fascinating treatment, see GLIMCHER *Neuroeconomics* (2003)

105 Personal communication with WOLF SINGER.

106 But trial and error can also be observed in animals. This has been demonstrated as early as THORNDIKE *Animal Intelligence* (1898)

More from BANDURA *Social Foundations* (1986) chapter 3, who calls this enactive learning.

108 ANDERSON *Learning* (2000) 338.

109 The prime source on observational learning is BANDURA *Social Foundations* (1986) recently, there has also been interest in behavioural economics; see MERLO and SCHOTTER in *Games and Economic Behavior* (2003). In literature, it is often called social learning, see e.g. MILLER and DOLLARD *Social Learning* (1941); LEFRANCOIS *Human Learning* (1982) chapter 13. This term, however, invites a misunderstanding. With this terminology, the learning object is easily confounded with the learning tool. Learning how to interact with other people is a learning object that calls for learning endeavours that need not coincide with efforts at, say, learning how to use the sense of vision properly. But this is not the same as learning by exploiting the social context. Only the latter, i.e. the social as a learning tool, is of interest here. Moreover, in this latter sense, the term social

get any explicit instruction in girls' work. They simply are given miniature copies of their mother's tools. They learn to use them by observing what their mothers do.¹¹⁰ Outright imitation is an option in observational learning.¹¹¹ But the power of this learning tool does not end there. Rather, observational learning is vicarious.¹¹² The individual relies on foreign experiences, rather than his own. Cognition serves as a mediating factor between stimulus and response,¹¹³ or more generally as a force for making foreign experiences useful. It does so by generating mental representations, called models in the pertinent literature.¹¹⁴ By doing this, the observer learns behavioural patterns, judgmental standards, cognitive competencies, and generic rules for creating new types of behaviour.¹¹⁵ He can learn how to weigh features of a more complex phenomenon. Observational learning can thus also have a quantitative character.¹¹⁶ It can result in making some kind of previously learnt response more likely.¹¹⁷ By observation, people can learn "to behave altruistically, to volunteer their services, to delay or seek gratification, to show affection, to select certain foods and apparel, to converse on particular topics, to be inquisitive or passive, to think creatively or conventionally".¹¹⁸

The more complex the environment, the less likely that a new situation will fully resemble an old one. Success therefore often presupposes adapting observed behaviour to a somewhat different context. This is why observational learning often has a creative component.¹¹⁹ Individuals tend not to learn concepts with ready-made solutions, but with a good deal of plasticity, instead. Psychologists call such concepts schemata.¹²⁰ Learning by exemplars, rather than abstract concepts is another way of generating plasticity.¹²¹ If this is done, learning is holistic. The learner recalls entire situations with most of their context.¹²² Both schemata and exemplars help explain human creativity.¹²³ Creativity works by way of association.¹²⁴ One category or the experience from one context

learning is not specific enough. In a way, any other learning tool can be social in that it exploits information inherent in the social environment.

Note that BANDURA Social Learning Theory (1977) also uses this term, but he later renamed it "social cognitive theory" in BANDURA Social Foundations (1986)

110 BANDURA and WALTERS Personality Development (1963)

111 MILLER and DOLLARD Social Learning (1941); MESSICK and BREWER in Review of Personality and Social Psychology (1983) 4; see also HEYES in Trends in Cognitive Science (2001) for work on imitation in many disciplines.

112 BANDURA Social Learning Theory (1977) 122-128.

113 This idea was first offered by TOLMAN Purposive Behavior (1932)

114 BANDURA Social Foundations (1986) 48 and passim.

115 Ibid. 49.

116 Ibid.

117 Ibid. 49 f.

118 Ibid. 50.

119 Ibid. 104.

120 Basic BARTLETT Remembering (1932) 206, 212 and passim; for a modern treatment see ANDERSON Learning (2000) 347 f.

121 BANDURA Social Foundations (1986) 103; ANDERSON Learning (2000) 348.

122 A parallel to psychological findings about real life "rationality" is telling. Psychologists show that it typically consists of either reason-based choice or narrative reasoning. In the former case, the decision-maker is content with just one reason for taking his decision. In the latter case, he decides by developing graphic stories, and choosing that course of action that generates the most plausible or convincing story. More on reason-based choice from SHAFIR, SIMONSON and TVERSKY in Kahneman and Tversky (2000) More on narrative reasoning from PENNINGTON and HASTIE in Cognition (1993); PENNINGTON and HASTIE in Goldstein and Hogarth (1997)

123 Cf. BANDURA Social Foundations (1986) 104: "creative modelling".

124 Cf. SINGER in Klinke and Silbernagl (2003) 751.

is blended into categories and experiences of a different origin.¹²⁵ The leaps that a child makes from one developmental stage to another may also be explained in reference to the ability for creative thinking. A child makes such a transitions by sudden insight. After having struggled with some disturbing element from the context for a while, the child suddenly perceives a new relationship.¹²⁶

Any learning that relies on consciousness and cognition can be split up into four components. The learner must pay attention. He must be sufficiently motivated. Some mental process must be set into motion. The outcome must be stored in memory.¹²⁷ Each of these components has generated considerable interest in psychology.¹²⁸

Finally the distinction between declarative and procedural knowledge must be introduced. Both kinds of knowledge are stored in memory, and can be retrieved. Declarative knowledge is additive. The individual, for instance, learns the characteristic features of dog races. Procedural knowledge, however, is integrative. Its object is abilities, not isolated pieces of knowledge. The individual, for instance, learns how to handle the clutch of his car.¹²⁹

d. Social Sciences

Social scientists are not directly interested in behaviour. They want to explain social phenomena, like interaction, the division of labour, conflict, power, order, or governance. But society is composed of individuals. It is the outcome of individual behaviour. This explains why social scientists have also shown considerable interest in learning. Not so rarely, they use the same concepts, or concepts closely related to those developed in behavioural science.¹³⁰ But due to the difference in their research question, they have also developed a set of original ways of conceptualising learning. Some of these intellectual tools are instrumental for understanding how law is learned.

Social scientists stress that much knowledge is tacit, not explicit.¹³¹ Individuals possess it, but they are not currently able to describe it in abstract language. It consequently cannot be transmitted by abstract instruction. In order to learn it, the novice must become part of the environment where it

125 The category of blending is given centre stage in TURNER Cognitive Dimensions (2001)

126 The concept of insight is key to HEBB Organisation of Behavior (1949) 159-165, see also 132-134.

127 BANDURA Social Foundations (1986) 51. He orders these components differently: attention, retention, production, motivation.

128 For a summary account of attention psychology see PASHLER Attention (1998) A standard reference on motivation is REEVE Motivation (2000) Central processing is the object of much controversy in psychology. One lucid model is ANDERSON, BOTHELL, BYRNE and LEBIERE in Psychological Review (2003). A classic on memory is BARTLETT Remembering (1932) for a modern treatment see ANDERSON Learning (2000) chapters 5-8.

129 More on this distinction from ANDERSON, BOTHELL, BYRNE and LEBIERE in Psychological Review (2003).

130 See, for instance, APESTEGUIA, HUCK and OECHSSLER Imitation (2003) on imitation, or MERLO and SCHOTTER in Games and Economic Behavior (2003) on observation, and HODGSON in Journal of Economic Literature (1998) 175. They describe old economic institutionalism by the fact that it sees learning "as a transformative and reconstitutive process, involving the creation of new habits, propensities, and conceptual frameworks".

131 The term was introduced by POLANYI Personal Knowledge (1958). For a modern, and critical, treatment see COWAN, DAVID and FORAY in Industrial and Corporate Change (2000).

is in use. Social scientists also make a distinction between "knowing that" and "knowing how".¹³² The basic idea inherent to this distinction is the same one in the psychological distinction between declarative and procedural knowledge. But, due to the difference in the research question, this ability is expected to be of social relevance. An example would be knowledge about how to generate team spirit. It is sometimes paralleled to the distinction between theoretical and practical knowledge.¹³³ Finally, there is a distinction between ordinary and fundamental learning. In the latter form of learning, the individual or society perceives a crisis that it does expect to be able to overcome merely by generating a novel set of categories.¹³⁴

3. Institutional Analysis

This paper claims: the primary learning of the law is part and parcel of general primary learning. Consequently, it would be inappropriate to analyse the law in isolation. In principle, law has an impact on primary learning the same way as other institutions do.

From the perspective of institutional analysis, impacting on primary learning is a fairly unusual task (a). A number of requirements for the character of institutions can be derived from this task (b). Both allow us to identify those institutions that effectively shape primary learning (c). They exhibit a certain degree of autonomy, which can result in counterproductive effects (d).

a. *Task Characteristics*

There are many divergent strands of institutional thinking.¹³⁵ Some are quite sceptical with respect to purposeful institutional design.¹³⁶ But they all agree that institutions serve a purpose. It can be described as the institution's task.

The standard case of institutional analysis is illustrated by work on environmental policy. The analyst strives to define an unresolved social problem, say air pollution, as neatly as possible. He then lists institutions that are conducive to improving the situation, say command and control regulation, a regulatory tax, or tradable permits. He finally fleshes out the comparative pros and

132 This is a distinction by RYLE *Concept of Mind* (1949) For a modern treatment, see MANTZAVINOS *Individuals, Institutions, and Markets* (2001) 30 f. and 73.

133 MANTZAVINOS *Individuals, Institutions, and Markets* (2001) 31.

134 SIEGENTHALER *Regelvertrauen* (1993)

135 Summary presentations are to be found in HODGSON *Economics and Institutions* (1988); POWELL and DiMAGGIO *New Institutionalism* (1991); RUTHERFORD *Old and New Institutionalism* (1994); HALL and TAYLOR in *Political Studies* (1996); DiMAGGIO in *Journal of Institutional and Theoretical Economics* (1998); IMMERGUT in *Politics and Society* (1998); PETERS *Institutionalism* (1999); MANTZAVINOS *Individuals, Institutions, and Markets* (2001)

136 This is characteristic for the more sociological strands of institutional thinking, like DiMAGGIO and POWELL in Powell and DiMaggio (1991) 9; HALL and TAYLOR in *Political Studies* (1996) 940, but see also RUTHERFORD *Old and New Institutionalism* (1994) 51-80.

cons of different acts of intervention.¹³⁷ This research strategy works, since the institutional task is relatively clear cut and confined. This is not the case with respect to primary learning.

From the sections on neurobiology, developmental psychology, the psychology of learning, and the work of social scientists on learning, a number of task characteristics can be derived. Some of them are more important than others. The most important characteristics are the result of our neurobiology. Critical phases are the quintessential example. If institutional intervention misses the respective critical phase, it becomes simply feckless.

Primary learning is iterative. Later steps build on earlier ones. There must be opportunities for accommodation, not just assimilation. Consequently, in order to be effective, institutions must be present over an extended period of time. Intervention must be tailored to the respective body of knowledge. This requires a differential approach, at least with respect to cohorts, if not with respect to individual, idiosyncratic stages of development. Institutions must take calculated risks by occasionally surprising the addressee with tasks that transcend his present abilities, while hoping to trigger insight, and hence the entry into a new stage of development.

To a large degree, primary learning is associative. This holds more, the earlier the stage of development. Consequently, the socially expected final result cannot be transmitted to the addressee as a ready-made, final product. The addressee must be given the opportunity to reach the outcome on his own. Moreover, for primary learning, observation is more important than instruction. This implies that successful institutions do not teach abstract rules, but present the addressee with graphic situations.

Primary learning has critical phases, be they neurological or developmental. This makes it paramount for institutions to intervene early enough. Specifically, the right intervention must come at the right moment. Normally only a few years are available. Later, intervention is very costly, if not just useless.

Nature gets primary learning going with a little bit of genetically coded information about the environment. This information is likely to be so basic that institutions will not have many opportunities to either exploit or ignore it. Associative bias could be a different matter. To the extent that it plays itself out in the somewhat more developed child, institutions will be more powerful if they respect or even exploit it.

Invasive, medical methods notwithstanding, the central processing within the brain will typically not come under institutional control. But the remaining three elements of learning are good targets for institutions. Institutions can manipulate attention, for instance, by pointing an adolescent to situations of great importance for society. Institutions can increase learning motivation. This cannot only be done as assumed by rational choice models, i.e. by changing incentives. Since the adolescent must still find his place in society, helping him orient himself can be at least as powerful, if not more. Finally, institutions can have an impact on the storage of what has been learned in

137 My own book on waste management is written in this tradition, ENGEL Abfallrecht (2002a)

memory. The two critical parameters are elaboration and retrieval. Information is stored better the more intensely it has been elaborated. Specifically, the number of associative cues is critical.¹³⁸ Institutions can use these by offering graphic, colourful context¹³⁹ and inviting the addressee to actively process the information.¹⁴⁰ Long-term memory is most reliable if the learned object has been retrieved several times at sufficiently large intervals.¹⁴¹ Institutions do therefore work best if they provide the addressee with several occasions for rehearsal.¹⁴²

b. Tool Features

Not all institutions can serve all governance purposes. A regulatory tax will not be very effective in generating a sense of responsibility, to give only one example. Institutions must therefore be matched to governance tasks. This tends to be a demanding exercise since institutions are almost never fully customised to their tasks. Regulation by law gives the political and legal systems more power than the citizen might want. Relying on moral suasion might only be sufficiently effective if there is a little brainwashing, and so forth. Moreover, the potential of almost all institutions is limited. The law has to acknowledge implementation deficits. Regulatory taxes do only reach addressees who behave like profit-maximisers, and so forth.¹⁴³ Practical governance is therefore faced with a need for operationalisation. It can best be understood as a matching exercise. Some task characteristics are traded for tool features that seem more acceptable.¹⁴⁴

From this angle, an earlier remark gains importance. In primary learning, some task characteristics have been found to be binding, respect for critical phases being the most obvious. If such characteristics are ignored, it is impossible for the institution to reach its stated goal. Put differently, the institution only makes sense if it also pursues a further, subsidiary goal.¹⁴⁵ A classic candidate is symbolic action, corroborating and publicising the determination of government to protect some value.¹⁴⁶

Three generalizable features of tools are worth mentioning. The effect of an institution on primary learning can be more or less direct. The most direct effect is through open instruction.¹⁴⁷ Mere exposure is much more indirect.¹⁴⁸ When this is all that is available, the actual learning is left entirely to the institutional addressee. Intervention works by selecting contexts in which one infer-

138 More from ANDERSON Learning (2000) chapter 6.

139 Cf. Ibid. 213, 270 f.

140 More from Ibid. 197-203.

141 More from Ibid. chapter 7.

142 Ibid. 186 f.

143 For a summary presentation of the limits and the side-effects of institutional intervention, see ENGEL Abfallrecht (2002a) 49-89.

144 More on operationalisation from Ibid. 100-110.

145 On such subsidiary regulatory goals, from a constitutional law perspective, ENGEL in Brugger, Kirste and Anderheiden (2002b) 134-136, see also 110-113.

146 The classic source on symbolic politics is EDELMAN Symbolic Politics (1964) see also HANSJÜRGENS and LÜBBE-WOLFF Symbolische Umweltpolitik (2000)

147 Cf. ANDERSON Learning (2000) 376: "indeed, much of human society can be seen as organised to diminish the inductive component in learning (to take the guesswork out of learning)".

148 Cf. ZAJONC in Journal of Personality and Social Psychology (1968).

ence becomes more likely than another. The psychological findings on how observational learning works indicate a third option. Institutions do not simply bring the addressee into an artificial context. They can also offer the addressee schemata or exemplars for orientation. Actually, psychologists have used this strategy for therapeutical purposes. They have cured children with neurotic fears by having them observe another person who successfully deals with the particular object of fear.¹⁴⁹

Institutions can be optional or mandatory. The mandatory character need not be either legal or governmental. A social norm that is enforced by ostracism is at least as inescapable as a provision of the criminal code. The degree and direction of primary learning depends on motivation. But, as mentioned, primary learning is in principle in the interest of the institutional addressee. The child and adolescent actively seek orientation.¹⁵⁰ Consequently, in primary learning, overcoming the opposing will of the addressee is often not the most important thing.¹⁵¹ This can even be counter-productive if it triggers attempts to find out how to lead a less oppressive life.¹⁵² It can be more effective for institutions to offer schemata and exemplars that can serve as role models.

Standard institutional analysis looks at isolated acts of intervention. It, for instance, singles out one legal provision and investigates its influence on solving a social problem. Due to the iterative and protracted character of primary learning, this is not likely to be successful here. Consequently, institutional analysis will have to concentrate on entire institutional arrangements, rather than individual acts of intervention. Understanding the interplay among many acts of intervention over an extended period of time is crucial.¹⁵³

c. Concrete Institutions

It directly follows from the foregoing that the law will not be able to channel primary learning by itself. This is not to say that the law is irrelevant. But the introductory remarks have already made it clear that the direct knowledge of legal rules in society is, at most, sporadic. It is even rarer that children and adolescents have direct contact with the legal system. The effect of the law must therefore either be indirect or subsidiary. Actually, it seems to be both.

149 BANDURA, GRUSEC and MENLOVE in *Journal of Personality and Social Psychology* (1967); see also BANDURA *Social Foundations* (1986) 103: "modelling influences can alter how people organise their thoughts, what type of information they seek, and how they process it".

150 In group psychology, the effect is usually named social comparison. A classic source is FESTINGER in *Human Relations* (1954). For a modern source see SULLS and WHEELER *Social Comparison* (2000)

151 Cf. BARON and KERR *Group Process* (2003) 68: "that our beliefs regarding what is normal, and good are social constructions [...] that derive power from the fact that they tend to be supported by most other people we encounter, especially in the groups we identify with (i.e. our reference groups)."

152 That way, developmental psychology is linked to the heated discussion over extrinsic stimuli destroying intrinsic motivation. More from WIERSMA in *Journal of Occupational and Organizational Psychology* (1992); CAMERON and PIERCE *Intrinsic Motivation* (2001); DECI, RYAN and KOESTNER in *Review of Educational Research* (2001); FREY and JEGEN in *Journal of Economic Surveys* (2001).

153 A similar observation holds for institutional intervention aiming at making behaviour more predictable; more from ENGEL *Predictability* (2004) part D III 10 d.

The impact of the law on the development of an adolescent is most visible if the adolescent himself, or someone from his close environment, comes into direct contact with the legal system. This is possible since the law is not a self-enforcing governance tool. Rule generation and rule application are separated; they operate in accord with different procedures; and they are entrusted to different organisations. When an administrative agency or a court applies an abstract legal rule to a case, it inevitably interacts with the concrete addressee of the law. This interaction presents the law with an opportunity to translate the normative expectation into language the addressee is likely to understand. It thus is an occasion for bringing the abstract rule to human scale. This is a way of stating the meaning of the psychological concepts of blending and compression.¹⁵⁴ Moreover, the application authority can tailor sanctions, and the way the legal procedure is administered, to the learning situation. By doing so it can pay respect to the fact that motivation during primary learning is more likely to work by giving learning direction than by overcoming the opposing will of the addressee.¹⁵⁵

A second path that the law can use to effect primary learning is more indirect. Legal rules can serve as points of reference in an uncertain environment. They can help learners gain orientation. They can become catalysts in the learners' attempts to make sense out of their social environment, and to define their own place within it. Actually, this is how the discussion on "expressive law" can be linked to the topic of this paper.¹⁵⁶ Instances of rule application can contribute to this process. But the diffusion of knowledge of rules via the media and other intermediaries is equally important. Here, the motivational component is of even less interest than in those cases in which the addressee has direct contact with the legal system.

While the law does thus have an influence on primary learning, the key institutional forces that affect it are different: the family;¹⁵⁷ kindergarten and school; the churches; the institutions for professional training like professional schools, colleges,¹⁵⁸ and universities, or apprenticeships; institutions for non-professional training like driving school, dancing school, military or social service. These do not only present the child and adolescent with an environment. They also consciously and purposively try to give his development direction.

Not all institutional forces have this tendency. Social norms originate from many sources, more or less formalised, more or less organised, more or less specialised.¹⁵⁹ They provide the adolescent with guidance, both by providing orientation and restrictions.¹⁶⁰ But social norms do not specifically aim at development. They are just part of the normative environment of the adolescent.

154 I owe these insights to personal communication with MARK TURNER.

155 More on the psychological background of rule application from ENGEL in Rengeling (2001)

156 For references see again note 30.

157 Cf. KREPPNER in Lampe (1997)

158 For an impressive treatment, see NEWCOMB *Personality and Social Change* (1943) He studied freshmen in Bennington College, typically coming from conservative families. Their opinions became significantly more liberal during the years in college, in line with the prevalent orientation among their teachers.

159 From the rich literature see only two sources that are interested in the interaction with the law: ELLICKSON *Order without Law* (1991); POSNER *Law and Social Norms* (2000)

160 See again CIALDINI, RENO and KALLGREN in *Journal of Personality and Social Psychology* (1990); CIALDINI, KALLGREN and RENO in *Advances in Experimental Social Psychology* (1991).

There are many sources of social norms like neighbours, who might exert a subtle social pressure that the adolescent "keep up with the Joneses"; non-governmental organisations, say environmental activist groups, aiming at generating ecological awareness; formal associations, like unions or political parties, trying to establish some values as a way of advancing their cause, and so forth.

Other informal, social institutions do not intend to impose themselves on their addressees. They content themselves with offering information and explanations. This, for instance, holds for the media, or for a tenants' association that gives advice to its members regarding how to relate to their respective landlords. In line with the concept of observational learning, it is also possible for informal institutions to offer role models.¹⁶¹ The adolescent learns by choosing his personal idol, say a famous singer, and copying his behaviour. Learning then is corroborated by identification.¹⁶²

An interesting intermediate case is the child's or adolescent's peer groups. Classmates, fellow Boy Scouts, or the members of a youth club do not normally purposefully set out to educate each other. But due to the similarity in age in such groups, children of about the same developmental stage interact with one another. This presents them with a two-fold opportunity. They can single out behaviour that is characteristic for their developmental stage, and compare it to the behaviour of adults, or of children at different developmental stages. Being a member of such groups is thus particularly informative. Moreover, such groups are a natural training ground for the adoption of social roles.

d. Institutional Autonomy

All these institutions, and many more, contribute to primary learning. Some of them even intend to do so. But this is no guarantee for a socially beneficial outcome.¹⁶³ Institutions may fail inadvertently. Take the egocentric pop singer, or Goethe's young Werther, if you prefer a more remote example. Whole generations can be misled in their development by copying a fashionable idol. Likewise, growing up in a context where crime is the order of the day is likely to have a detrimental impact on the child's behaviour later in life.¹⁶⁴

More disquieting even, institutions may fail on purpose. Rational choice theorists point to the fact that institutional development tends to be driven by the desire for distributional gain. This is a clever strategy. Open redistribution is highly vulnerable. Winners and losers are visible. At the first opportunity, the losers will try to reverse the outcome. Distributional gain is safe, however, if it results from the solution to a true social problem. For even the distributional losers would be worse off were they to overthrow the institution. For then the original social problem would come back. Now getting a distributional advantage by solving a social problem is rather easy. For there is hardly any problem that could not be solved or alleviated in more than one way. Put differently,

161 CIALDINI and TROST in Gilbert, Fiske and Lindzey (1998) 159.

162 More from BANDURA Social Foundations (1986) 48.

163 This is why POSNER Law and Social Norms (2000) 8 and passim, calls for the legal control of social norms.

164 More from BANDURA Aggression (1973)

there is usually more than one institutional response to a social problem. Imposing one of these solutions is therefore the best way of securing long-term distributional gain.¹⁶⁵

Other explanations transcend rational choice theory. Reference groups may define themselves by the transgression of legal or social expectations.¹⁶⁶ Socially harmful behaviour can be the test for membership in a group. It can be a way of building a reputation therein, or of gaining leadership.¹⁶⁷

But even in the absence of any hostile intent, formal or informal institutions may nonetheless, and consciously, spur the development of children and adolescents in a direction that is at variance with the normative convictions of greater society. This is due to the fact that institutions lead an independent life.¹⁶⁸ They do not only have substantive interests, to be pursued in their interaction with the outer world. They also, and rightly, strive for their own sustainability. These two interests can stand in contradiction to one another.¹⁶⁹ More generally, mature societies handle complexity by differentiation. Several sub-systems of society gain, and are guaranteed, considerable autonomy, or autopoiesis. The ability, and the likelihood, of ignoring, disregarding, misinterpreting, or transforming input from the other sub-systems is the very reason for their ability to jointly manage higher complexity.¹⁷⁰ This is particularly true for the many institutions that contribute to primary learning. Families do and must lead lives that are only marginally touched by the law. Schools rightly do not define themselves as training grounds for the law. In military instruction, legality cannot assume centre stage.

4. Learning the Law

We have now assembled the bits and pieces necessary to solve the original puzzle. We can now explain why the law governs behaviour, although only professional lawyers can properly handle the intricacies of the law; although the general public receives hardly any direct legal instruction; although even the wording of most legal rules is unknown to those who are expected to apply them. They have learned the normative expectations inherent in the law as part of their general primary learning. A rich institutional arrangement has taken care of this task. This section defines the task more precisely and specifies the institutions that contribute to it.

A distinction taken from learning psychology is crucial for understanding how the general public learns the law. This learning has two components. The first can be seen as procedural knowledge.

165 The point can be made more precisely by using game theory. Any institutional solution is a Nash equilibrium. It is a property of Nash equilibria to be stable after the fact; KNIGHT *Institutions and Social Conflict* (1992)

166 MCADAMS in *Michigan Law Review* (1997) 347.

167 MULLEN, COPPER and DRISKELL in *Personality and Social Psychology Bulletin* (1990).

168 This is the basic point of political science institutionalists, like MARCH and OLSEN *Rediscovering Institutions* (1989); MARCH and OLSEN in *International Organization* (1998).

169 The point is further developed in the distinction between a logic of influence and a logic of membership; SCHMITTER and STREECK *Business Interests* (1999)

170 This is the basic idea behind systems theory, as developed by NIKLAS LUHMANN. For a succinct presentation consult LUHMANN *Ökologische Kommunikation* (1986)

The second component is declarative knowledge.¹⁷¹ The first component is more or less unitary. The child and adolescent progressively develop this ability. In the following, it will be called normative proficiency (a). The second component is additive. It is composed of a potentially unlimited number of individual normative expectations (b). This is not to say that, within the individual's mind, these expectations are isolated. On the contrary, it is both likely and desirable that they be organised systematically. But such organisation is a matter of quality, not of principle.

a. Normative Proficiency

Developmental psychology demonstrates that primary learning occurs in stages. It presupposes accommodation, not just assimilation. The child must repeatedly undergo cognitive crises, which propel him from one stage to the next. Stage by stage, the child progresses. Only by reaching the final stage is the adolescent able to exploit the full potential of his brain. Only by getting there does the adolescent also become a valuable member of society. All this is of particular importance for the proper handling of normative expectations. Only those who reach the final stage are able to appropriately respond to legal expectations. Fortunately, due to their characteristic institutional environment, in modern societies it is likely that people will achieve these final developmental stages.

The child is surrounded by normative expectations from the very beginning of his life. His parents tell him what to do and what not to do. They reward the child for obedience, and they punish him for infraction. Normativity is thus among the first experiences that the child has. Along with this, the child learns to control his drives, to do what is expected of him, and not always to follow his immediate impulses. Normativity thus is a fast track procedure for endowing the next generation with the experiences of their predecessors. Due to the associative character of the brain, any child will soon acquire the ability to handle normative expectations. Otherwise he could not exist in what is his world in the first years of life, i.e. in his family. Put differently, learning the law starts extremely early in life, already during the first two years.¹⁷²

In order for the child to accept and properly handle the law, he must acquire a sense of justice.¹⁷³ This presupposes that he adopt a social perspective.¹⁷⁴ The child must be able to look at his own behaviour from the perspective of the group, or society.¹⁷⁵ This ability starts in stage 2. At this stage, the child can perform the mental operation of self-observation. He considers how others will

171 See again ANDERSON, BOTHELL, BYRNE and LEBIERE in *Psychological Review* (2003). Alternatively, one might rely on the distinction between knowing how and knowing that from the social sciences; on that see again RYLE *Concept of Mind* (1949)

172 HAMMER and KELLER in Lampe (1997) 170. Actually, the same observation also holds with respect to many other abilities. For instance, children living on the streets of Brazil have been observed to aptly handle the calculations necessary for buying and selling, without having ever received any formal mathematical training. MARTIN BECKENKAMP pointed this example out to me.

173 REHBINDER in Gruter and Rehbinder (1983); ECKENSBERGER and BREIT in Lampe (1997) 257; HAMMER and KELLER in Lampe (1997) 152.

174 SELMAN *Soziales Verstehen* (1984) 45, 48 and passim.

175 *Ibid.* 34.

see his own behaviour. At stage 3, the adolescent is able to simultaneously handle the perspectives of actor and observer.¹⁷⁶

The law confronts its addressees with normative expectations. But these are not the same kind of expectations as those that a mother has of her child. Developmental psychology demonstrates the steps in transforming the understanding of normativity that are necessary for properly handling legal expectations.¹⁷⁷ A child cannot understand why the law is, in principle, a legitimate form of governance unless it abstracts from his own drives and desires.¹⁷⁸ This ability improves from development stage to development stage. The understanding of punishment offers a good illustration of this. Already at stage 1, the child learns that punishment can be pedagogical. At stage 2, he apprehends the communicative dimension of punishment. At stage 3, he learns to accept that punishment is occasionally driven by self-interest, rather than the interest in the child. At stage 4, the adolescent even recognizes that his parents sometimes cannot control the drives that make them administer punishment.¹⁷⁹ All of this can be projected to the understanding of legal intervention. It is typically not a mere act of social revenge; instead, it aims at governance. The law is one path of communication between the citizen and the state. Occasionally, the legal system is cast under the spell of the self-interest of those administering it. And sometimes only systematic reasons can be offered for the state of the law: it can be explained in reference to legal institutions, which act as independent forces, rather than in reference to people who have intended some concrete outcome.

The law is a fairly complex institution. Form and substance are typically separated, as are rule generation and rule application. Validity and preclusion are artificially drawn lines. Facts that cannot be proven in court do not exist for the law. Valid arguments can be taken from documents that are hundreds of years old, or that stem from entirely different branches of the law, and hence life. The law can be changed at any point of time at the legislator's will. The degree of substantive complexity and the powers of the judiciary are such that rule application is potentially always rule evolution. For all of these reasons, morality and legality can become separated.¹⁸⁰ Understanding all of this is a precondition for developing generalised trust in the legal system. Such trust is paramount for the proper functioning of the law.¹⁸¹ Normative proficiency therefore implies a fairly advanced ability for abstraction.¹⁸² It is only in the last stages of development that the adolescent acquires this ability. At stage 3, the child is able to conceptualise groups as abstract and differentiated social systems. He also gains an understanding of internal organisational structure and of role

176 Ibid.

177 Related questions have been asked by TAPP and KOHLBERG in *Journal of Social Issues* (1971); REHBINDER in Gruter and Rehbinder (1983); ECKENSBERGER and BREIT in Lampe (1997); HAMMER and KELLER in Lampe (1997); TEUCHERT-NOODT and SCHMITZ in Lampe (1997)

178 This is another way of expressing what it means to adopt a social perspective; SELMAN *Soziales Verstehen* (1984) 48.

179 Ibid. 138-146.

180 ECKENSBERGER and BREIT in Lampe (1997) 254 and 285, point to this feature of the developmental task.

181 Cf. SCHLICHT *Custom* (1998) 26: "laws can affect entitlements and obligations only within an atmosphere of generalised law obedience"; see also ECKENSBERGER and BREIT in Lampe (1997) 275.

182 On abstract modelling, in the sense of observational learning, see BANDURA *Social Foundations* (1986) 100-102.

differentiation.¹⁸³ Only at stage 4, however, does the adolescent fully grasp pluralism and tolerance. The adolescent now senses the importance of compromise, and the need for formal validity, rather than the enforcement of universal rules.¹⁸⁴ Binding obligations can result from a mere contract, or they can be the output of formal group decision processes.¹⁸⁵ Consequently, the adolescent distinguishes between an office and the individual holding it.¹⁸⁶ Group structure is expected to be pluralistic and formally organised.¹⁸⁷ The adolescent learns the importance of symbols for social systems¹⁸⁸ and that it is possible to dissolve conflict by mere symbolic action.¹⁸⁹

It follows from the foregoing that developing normative proficiency is part and parcel of development as such. Put differently, there is no separate legal proficiency. Properly handling normative expectations from the law is tantamount to reaching the highest stage of development. Consequently, it should no longer be surprising that there is hardly any specific institutional intervention that aims to develop legal proficiency. The general acts of institutional intervention that give development direction also take care of the development of normative proficiency. These institutions have been portrayed above.

Likewise, there is no need for separate institutional intervention aimed at directing the child's attention, at giving him a sufficient motivation for learning, or at seeing to it that the result of learning is adequately stored in memory. All this is done by the general institutions that affect primary learning.

Finally, due respect for critical phases in brain development is crucial for the generation of normative proficiency. Specifically, the prefrontal cortex must be presented with the necessary stimulus material in its critical phase, i.e. adolescence.¹⁹⁰ But this does not require additional institutional intervention either. The adolescent acquires the procedural knowledge for properly handling the law if he is guided to the final development stage, i.e. stage 4.

b. Normative Expectations

Normative proficiency is a necessary, but not a sufficient condition for governing behaviour via the law. If the adolescent has reached the final stage of his development, he knows what to expect from the law, and how to handle its expectations. He thus possesses the necessary procedural knowledge. But on its own, this knowledge is vacuous. It must be filled with declarative knowledge about normative legal expectations. How do the law's addressees learn these expectations, without knowing the wording of statutes, and without having the professional knowledge for interpreting them?

183 SELMAN *Soziales Verstehen* (1984) 166.

184 *Ibid.* 167 f.; a similar point is made by TAPP and KOHLBERG in *Journal of Social Issues* (1971) 81 f.

185 SELMAN *Soziales Verstehen* (1984) 167.

186 *Ibid.* 132.

187 *Ibid.* 132-134.

188 *Ibid.* 54 f.

189 *Ibid.* 124-126.

190 SINGER in *Universitas* (2001) 1011.

In answering this question, we must begin with an adequate specification of the learning object. For the governance effect of law, it is irrelevant whether the addressee knows the wording of the rule. He need not even have an idea of the abstract behavioural requirement underlying the rule. All he must know is what he is expected to do in a concrete situation to which the legal rule applies. The addressees' knowledge of the law can therefore be tacit, implicit, and practical.¹⁹¹

Practically speaking, there are two possibilities. In the first case, the legal rule is *grosso modo* mirrored by a social norm, or by custom.¹⁹² Such mirror rules will not have the same level of sophistication as the underlying legal rule. They will often only cover standard cases, not exceptional ones. If they are to be effective, they must be easier to grasp than the actual legal rules. They must pay respect to the fact that the human mind is much better at detecting associations than at abstract reasoning.¹⁹³ Specifically, they will rely on schemata,¹⁹⁴ rather than on the neat mental constructs that are codified in the law.¹⁹⁵ Put differently, such mirror rules will take a good deal more of context on board than the underlying legal rule.

The second option pushes contextualisation even further. In this event, the addressee learns no general rule whatsoever. Instead, he uses exemplars for normative orientation.¹⁹⁶ He knows what the law expects him to do in a certain context. He can even tentatively extend this knowledge to different contexts by way of analogy. This second method of learning the law can be preferable to the diffusion of social mirror rules. For it eclipses the hermeneutical problem that so profoundly plagues professional lawyers. If the addressee of the law stores exemplars in his mind, there is no longer any need to match an abstract rule with a never fully fitting concrete case.

In principle, any learning mechanism can contribute to the acquisition of this declarative knowledge. Cognitive learning, resulting from open instruction, is one possibility. The mother tells the child that he should not steal. The teacher tells his pupils that they should not cheat. The head of a football team tells the players that they should play by the rules. But most normative expectations are learned through inference. All children provisionally overstep what they expect to be their limits. This allows them to learn the exact confines of normative expectations by trial and error. In other contexts, the child will just follow his drives. If he is constantly punished for some kind of behaviour, he will learn by operant conditioning to avoid it. Likewise, constant rewarding will make it more likely that the child will repeat this behaviour.

The predominant mechanism for learning the normative expectations of the law, however, is observation. This mechanism is precisely tailored to the learning object. By watching how others master a situation, the child gradually learns the underlying models, be they partly generalised mirror rules or exemplars. Observational learning also makes it possible for the learner to process

191 In the sense of POLANYI *Personal Knowledge* (1958)

192 Cf. SCHLICHT *Custom* (1998) 25 f.: law can shape hypotheses about the justness of entitlements.

193 See above 2 and 4.

194 In the sense of BARTLETT *Remembering* (1932) 206, 212.

195 Cf. HAMMER and KELLER in Lampe (1997) 169: learning the law implies transformation, not just the transmission of information; cf. also SCHLICHT *Custom* (1998) 196-198.

196 In the sense of BANDURA *Social Foundations* (1986) 103; ANDERSON *Learning* (2000) 348.

the indirect information about the contents of the law in other ways than the actors he observes. It allows the learner to integrate the normative expectations into his own behavioural programmes in precisely the way that is most effective for him. Finally, and most importantly, the possibility of observational learning resolves the second part of the original puzzle. The law's addressees can indeed be governed by the law without having any knowledge of legal texts.

The declarative knowledge of normative expectations is additive. In principle, any new expectation must be learned separately. Since the legal expectations reach their addressees in a considerably more contextualised manner than in the original legal context, the number of expectations to be learned is even larger. In principle, one and the same legal rule must be learned again in any sufficiently different context. But most legal rules cater to unusual and rare cases. Ordinary citizens can thus perfectly abide by the law and perpetually ignore many of its rules. Moreover, the human brain is prepared to store huge amounts of information. What may thus look like redundancy or even a waste of mental resources is actually a learning method well-adapted to the strengths of the brain.

The declarative knowledge of normative expectations is additive. But this is not to say that normative expectations originating in the law would have to be learned separately from normative expectations that have a social origin. On the contrary. As outlined, the distinction between morality and the law is only understood at the final stage of development. Consequently, the child amasses most of his knowledge about normative expectations before he ever understands how the law differs from other norms.

From the foregoing it is possible to derive how the learning process takes place. There are many ways, during development, that the child's attention is directed towards hitherto unknown normative expectations. Somebody may explicitly tell him. He may be surprised by success or failure. But predominantly, a child will be driven to learn the normative expectations prevalent in a context by his interests in orientation, and in finding his own place in that context. It is thus the novelty of the context that generates attention. Likewise, the motivation for learning new normative expectations can be generated by outright positive and negative sanctions. But again, the search for orientation will often be sufficient. Since learning the normative expectations and practising them goes hand in hand, there are strong chances that they will be properly stored in memory.

Conceptually, procedural and declarative knowledge must be distinguished from one another. Actually, these two kinds of knowledge are even physically processed differently and stored differently in the mind.¹⁹⁷ This is not, however, to say that they must be learned at different points of time and in different contexts. On the contrary. Since the procedural knowledge about handling normative expectations is vacuous, it can only advance if and when the child or adolescent struggles to process concrete normative expectations. Consequently, one should not look for different sets of institutions that aim at generating procedural and declarative normative knowledge in the child. Not only is normative proficiency generated because institutions see to it that primary learn-

197 More from ANDERSON, BOTHELL, BYRNE and LEBIERE in *Psychological Review* (2003).

ing takes place; so is declarative knowledge about normative expectations. There is, however, one qualification. The further the adolescent advances in life, the more procedural and declarative normative knowledge will become disentangled. Specifically, in any new context he will have to learn new normative expectations. Occasionally, one of these normative demands will confront him with a surprise that will trigger the advancement into a new developmental stage. In other instances, the procedural knowledge will be refined, without leading to an advancement to a new developmental stage. But most of this learning is ordinary business, so to speak. It is confined to understanding yet another set of normative expectations in a new context.

c. *Design for Learning*

Happily enough, our societies are not rife with *akrasia*. The original puzzle is thus real. Most people abide by the law most of the time, without knowing the law in any professional sense. But, of course, in all societies, legal rules are violated. What could a legislator, based on the findings from this paper, do if he intended to improve the primary learning of the law?¹⁹⁸ What would institutional policy look like if it paid due regard to psychological findings about primary learning, and made them a central element in the designer's opportunity structure? One way of tailoring the question for the task of this section of the paper is to ask: is a considerable part of the remaining disobedience an artefact of institutional intervention? This would be the case if these institutions unduly disregarded the neurobiological and psychological mechanisms that can lead to the primary learning of the law. In light of the psychological findings about learning, we thus ask: would institutional designers be well-advised to openly engage in some kind of learning policy?

One option available to the institutional designer is task manipulation. As outlined in the introduction, the legislator frequently seizes upon this option. He does so if he bypasses the need for the general public to learn his rules.¹⁹⁹ But the legislator need not be that radical. He can content himself with shaping legal rules such that the normative expectations are easier to learn. Specifically, the legislator can use the step of operationalisation for this purpose.²⁰⁰ One example would be clear-cut, easy-to-grasp rules.

As outlined above, institutions can have an impact on primary learning via the learning process. Learning-friendly legal design could therefore supplement the abstract rule with measures that generate attention. One way to do this would be to require, or to request, that the addressees expose themselves to the context in which the rule is to be applied. Specific intervention could make it clear to the addressees why it is in their best interest to learn about the normative expectations. This would be a way of increasing learning motivation. Moreover, legal design could aim to provide the addressees with sufficient opportunities for practice, in the interest of making the storage in memory more likely and more reliable. The most important measure, however, would consist of bringing the abstract normative demand to human scale. Practically speaking, the legislator could

198 A related question has been asked by TAPP and KOHLBERG in *Journal of Social Issues* (1971) 85-89 when they explore the "implications [of their developmental approach on] legal socialisation" (85).

199 See above I 3.

200 Cf. on operationalisation above 6 b.

accompany the abstract legal rule with suggestions for transforming it into the conceptual world of its addressees. This could be done via the distribution of material from which it is easy to build social mirror rules. Or the abstract rule could come with a number of graphic exemplars.

The benefits from design for learning should, however, not be overestimated. For the indirect way by which legal rules typically reach the general public is not only an analytical puzzle. From a normative perspective, it is a highly elegant tool for making a complex legal system viable. Precisely because the addressees need not concern themselves with the professional machinery of the legal system, the latter is freed up to develop. The legal system need no longer be concerned with whether a new doctrinal wrinkle is only understandable to a small number of specialists. The legal system can thus largely focus on generating internal coherence, and on finding the best solutions to the complex cases with which it actually is concerned. The legal system can rightly trust that the governance effect of its rules will be taken care of by the, mostly social, institutions guiding the primary learning of the law.²⁰¹

III. Secondary Learning

1. Introduction

So far so good. The law governs behaviour since the adolescent acquires normative proficiency, and learns the normative expectations of the law when he finds his place in society. But neither of these is static. The law frequently changes. Individuals leave their contexts of origin. The primary learning of the law is therefore not enough to explain the governance effect of law. In order to be effective, it must be complemented by the secondary learning of the law.

Neurologically and psychologically, it is necessary to keep two situations distinct. In the first, the individual can cope with changes at the level of declarative knowledge. Adding new items, or replacing old ones with a new set, is enough to realign behaviour. In the second, procedural knowledge is affected as well. That happens when the individual had previously reached an adequate level of normative proficiency. But the new normative expectations of the law are fundamentally different in kind from those he learned. Specifically, in such cases the individual must not only learn new normative expectations. He must learn a new way of handling expectations originating in the law.

Although the category of fundamental learning has been developed for a different purpose, the latter case is parallel to situations which the social sciences refer to by this term.²⁰² In the social sciences, it is used to characterise learning in a situation of perceived deep uncertainty. The individual, or society for that matter, feels that he must start from scratch to make sense of the envi-

201 Similar ideas, although not based on an explicit learning theory, have been offered by LUHMANN *Legitimation durch Verfahren* (1969)

202 SIEGENTHALER *Regelvertrauen* (1993)

ronment. This is exactly what happens if change depreciates the procedural knowledge inherent in normative proficiency.

Mere legal reform will not typically affect the normative proficiency of its addressees. It takes place within one and the same legal order, state, and society. This legal order is altered and enriched, but not fundamentally changed. Actually, understanding the historical contingency of the law in force is one of the definitional features of the highest stage of normative proficiency.²⁰³ The situation may, however, be different after the demise of the entire regime. Another way of putting the difference is as follows: from a learning perspective, there is a fundamental difference between legal evolution and legal revolution. This might help explain the difficulties that the populations behind the former iron curtain have in productively handling their newly gained freedoms. The version of normative proficiency they have retained from their earlier exposure to communist regimes is highly inappropriate for the altered economic and legal context.

Fundamental change will be more frequent if it is not the law that changes, but the individual. Of course, not every change of context qualifies. The fact that an individual enters a new association does not imply that he is unable to handle the new normative expectations prevalent in this context. The same applies for a change of a job, or the removal to another town. But going abroad will often be a different matter. Admittedly, professional lawyers, if they engage in comparisons across legal orders, more often than not find similarities. Despite fundamentally different legal traditions, the actual solutions to similar social problems often come very close to one another.²⁰⁴ But from a learning perspective, context matters at least as much as the actual legal rule. This is precisely because the law, in general, reaches its addressees indirectly. It is mirrored in much more contextual social rules, or in entirely contextualised exemplars. Consequently, a newly arrived immigrant will not find the signals he expects. Likewise, often he will often not pay attention, and he will be unable to decipher those signals that are functional equivalents in the new environment. A similar effect is likely if an individual converts to a fundamentally different religion, or if he is thrown into an entirely different social context, even if he remains within his country of origin.

The following sections take these challenges up in turn. First, smaller changes are addressed, which the addressees can handle by reconfiguring declarative knowledge (2). More profound changes, calling for an adaptation of procedural knowledge as well, are taken up later (3).

2. New Normative Expectations

After legal reform, or after individuals have arrived in a new social context, individuals must undergo what has been called here the secondary learning of the law. They must add new items to the stock of normative expectations they hold in memory. In principle, these are learned the same way as individual normative expectations are learned in youth and adolescence. In particular, the same learning mechanisms remain available. Learning still primarily occurs through observation.

203 See above 0.

204 For an introduction to comparative law, see ZWEIGERT and KÖTZ Comparative Law (1998)

It is still typically indirect. The learning object is thus usually the social mirror rule or the exemplar, not the professional legal rule. But there are a number of normatively relevant differences between the primary and the secondary learning of normative expectations.

Development is learning. But learning is not confined to development. The brain of an adult retains the ability to learn.²⁰⁵ The neurological mechanism in principle remains the same as it has been since childhood. Learning still works by modifying the interaction between nerve cells.²⁰⁶ Adults are even able to learn many things much faster than children or adolescents.²⁰⁷ This results from the fact that primary learning has endowed them with many preconfigured units.²⁰⁸ On this basis, secondary learning can be confined to finding new ways to combine these units,²⁰⁹ or to facilitate what had already been stored previously.²¹⁰

But there is a downside. Physically, the brain has lost much of its plasticity. New links between nerve cells are highly unlikely. It also is rare for previously used links to become entirely inactive.²¹¹ This implies that gradual change is easy, but fundamental change is hard for the adult brain. But if legal reform presupposes no more than that some new pieces of declarative knowledge are added to memory, the anatomy of the mind does not pose an obstacle.

Yet the brain of an adult is no longer the (almost) blank slate that distinguishes human children so dramatically from the offspring of animals. Whenever the legislator undertakes reform, he must address individuals who come with a learning history. The addressees therefore must integrate the new object into whatever mental web they have retained from previous experiences. The phenomenon can also be characterised by a term that is fashionable in the social sciences: the individual learning histories of addressees for the law translate themselves into path dependence.²¹²

A feature of memory explains why this can be an important impediment to legal reform. Above, the difference between procedural and declarative knowledge has been explained in reference to the fact that the latter is additive. This shorthand explanation should, however, not mislead the reader. The many items of declarative knowledge are not entirely disconnected from each other. The astonishing performance of memory rests on its associative character.²¹³ Retrieval is more likely, the more associative cues are attached to a particular piece of knowledge. Moreover, human memory saves resources by permanently attempting to make sense of information.²¹⁴ Memory is therefore reconstructive, not merely recalling.²¹⁵ The storage of the new normative expectations can be impeded by interference.²¹⁶ Ironically for legal reform, interference is more likely, the

205 SINGER in Schmidt (1991) 97, 109, 119 f. and passim.

206 SINGER in Klinke and Silbernagl (2003) 750.

207 HEBB *Organisation of Behavior* (1949) 127.

208 *Ibid.* 108.

209 *Ibid.* 156.

210 *Ibid.* 180 f.

211 SINGER in Klinke and Silbernagl (2003) 748.

212 The classic text on path dependence is by DAVID in *American Economic Review* (1985).

213 BARTLETT *Remembering* (1932) 208.

214 ANDERSON *Learning* (2000) 200.

215 BARTLETT *Remembering* (1932) 204 and 206; ANDERSON *Learning* (2000) 285-287.

216 ANDERSON *Learning* (2000) 240 f. and 249.

closer the new normative expectation resembles its predecessor.²¹⁷ Consequently, psychologically, legal reform is more promising if the new expectations are significantly different, provided they can still be handled by the existing normative proficiency.

A further difference between the primary learning of the law and the learning that takes place after legal reform is motivational. For the addressees no longer see the same need for orientation, and for defining their own position within the respective social context. This has been shown to be the most powerful motivator for the primary learning of the law. Here, too, the otherwise similar circumstances of learning associated with legal reform, and of an individual's move to a different context diverge. In the latter case, the individual in principle feels the same urge for orientation as when engaged in the primary learning of the law.

Often, another feature of learning and memory makes legal reform even more problematic. The brain uses resources in as economical a manner as possible. If it realises that the individual repeatedly faces similar tasks, the brain reacts with expertisation. Instead of composing all of the individual steps separately each time an individual is confronted with a situation, the brain stores the entire chain of mental or physical steps as one unit. In the end, one cue may be enough to set the entire programme into motion.²¹⁸ Thereby behaviour is patterned²¹⁹ or even automatized.²²⁰ This can also occur if the individual reacts to a protracted normative expectation of legal origin. Actually, this is even likely, and in principle it is beneficial for the law. For expertisation implies that the individual does not reconsider whether to follow rules at every new occasion. An individual just follows rules as part of his way of life. This explains why the implementation of most legal provisions usually occurs without further ado.

But for legal reform, previous expertisation is a problem. It makes it likely that the addressees will simply ignore the change of rules. The addressees have long learned to deal with the respective area of life with well-established routines. The legal designer must therefore see to it that the addressees pay attention to the reform. Moreover, even if the addressees consciously realise that the law has changed, this does not automatically imply that they will change their behaviour. Routines are so powerful precisely because they are executed with fairly little, if any, conscious processing. It is therefore not enough to make the addressees aware of a change in the law. It does not even suffice to properly translate the new normative expectation into a social mirror rule or an exemplar. It would still be likely that they would react by relying on the previous routine whenever they come into the pertinent situation. The addressees therefore must undergo a process of unlearning. The previous routine must be deactivated. If the law expects to be implemented as easily as before, along with this, a new routine must be established. Things are even more demanding if the old routine is still needed for other situations or contexts. In that case, it must be unpacked, and new elements or specifications must be integrated into it.

217 Ibid. 243-245.

218 HEBB *Organisation of Behavior* (1949) 157; ANDERSON *Learning* (2000) 324 f; SINGER in Klinke and Silbernagl (2003) 751.

219 ANDERSON, BOTHELL, BYRNE and LEBIERE in *Psychological Review* (2003) ****8 of preprint***

220 ANDERSON *Learning* (2000) 310.

In addition to this, there is also a social problem. In primary learning, the predominant mode for learning normative expectations is observation. Children and adolescents observe those who already handle the normative expectations of the law with ease. That way, expectations are transmitted from generation to generation. Sometimes, legal reform can exploit the same mechanism. A better solution has been found in one context. By legislative fiat, it is extended to other contexts. In that case, it is at least conceivable that those from the newly affected contexts will observe those who are already accustomed to this normative expectation. Due to the profoundly contextual character in which normative expectations are learned, this is, however, not very likely. More importantly, legal reform rarely follows models from different contexts that closely. As such, there are no contextualised models from which to learn by observation. Put differently, in a learning perspective, it is obvious why the implementation of legal reform is risky and time-consuming. For at least some addressees must be reached more or less directly by the law. Moreover, their contextualised responses must spread within the social environment.

This explains why legal reform typically relies on additional social institutions. These institutions are needed to manage the original transposition of the legal rule in the first attempts at contextualisation. To use a term from learning psychology, these institutions can also be addressed as compression intermediaries.²²¹ It is their task "to bring the legal rule to human scale".²²² There are many institutions that can contribute to this. It is even likely that in practical instances several of them will play a role. The political parties and the media generate awareness of a change in the law. They also both strive to present the gist of the new legislation to the general public, of which future addressees are a part. If the targeted context lends itself to that, lobbyists from this context may participate in the process of rule generation. This puts them in a natural position to translate the outcome to their audience.

Sometimes, government even deliberately acts indirectly in order to enable the eventual addressees to learn of the change. The response of German policy-makers to the problem of plastic waste offers a good illustration. More than half of such waste is from packaging. Since German environmental policy-makers have ambitious substantive recycling goals, they could not ignore this waste fraction.²²³ The recycling of packaging waste, however, presupposes that households separate waste. Indeed, German environmental law obliges them to do so. But policy-makers rightly surmised that simply laying down that obligation in a statute would not be effective. They found the following way out: they threatened the retail trade industry with a legal obligation to take plastic waste back in their premises. Industry would be exempted, however, if it, by way of self-regulation, met the recycling-quota of the law. This induced industry to heavily invest into a long-term advertising campaign that eventually educated almost all Germans effectively.²²⁴

221 On compression, see again TURNER *Cognitive Dimensions* (2001) 26 and passim.

222 I owe this graphic term to personal communication with MARK TURNER.

223 By precisely limiting the goal to industrial waste, Great Britain was able to eclipse the problem; more from BASTIANS *Verpackungsregulierung* (2001)

224 More from LÜDEMANN *Edukatrisches Staatshandeln* (2004) .

It follows from the foregoing that purposeful design for learning is much more important for legal reform than for the initial diffusion of normative legal expectations via primary learning. As in the case of primary learning, such design will, however, normally not directly target the final addressees of the new rules.²²⁵ It will rather try to have an impact on the aforementioned intermediaries who translate the abstract legal rule into context specific mirror rules, or who present exemplars to their audiences.

3. Updating Normative Proficiency

The neurobiological challenge becomes much more serious if the change of rules or context is such that the procedural knowledge about handling normative expectations from the law is no longer fully appropriate. This is a two-fold challenge. First, the anatomy of the adult brain has almost entirely lost its plasticity.²²⁶ Second, there are critical phases in brain development.²²⁷ The learning of a second language provides a good illustration of both effects. Hardly anybody who learns one later in life ever reaches the level of proficiency he commands in his mother tongue.²²⁸ Both effects imply that, even if individuals were willing to undergo the effort involved in primary learning a second time around, their brain would no longer be prepared for that.

Does neurological analysis therefore evoke the spectre of a lost generation? The answer crucially depends on further questions. What is the degree of generality in normative proficiency? How strictly is the acquisition of normative proficiency tied to (early phases of) development? Is the entire normative proficiency necessarily acquired via primary learning, or is there an opportunity for some secondary, procedural learning regarding how to handle normative expectations? Put differently, is there a chance to update procedural knowledge about the handling of normative expectations that could build on an earlier version of normative proficiency, rather than overthrow it?

In essence, these are empirical questions. Apparently, they have not been investigated directly. Psychologists have, however, wanted to know how much procedural knowledge is "structural", rather than context specific.²²⁹ Moreover, psychologists interested in observational learning have explored the possibility of abstract, rather than concrete modelling.²³⁰ Work on learning shows that humans in principle retain the ability for procedural learning after adolescence.²³¹

Casual empiricism seems, however, to imply that there are indeed limits. Some immigrants never integrate, and this may not only result from social cohesion among those who have the same national origin. Some fundamental changes in the legal order seem to be lost on those who have

225 Which could in principle be done the same way as outlined with respect to primary learning, see above 0.

226 See above 0 and 0.

227 See above 0.

228 SINGER in *Universitas* (2001) 889 f..

229 MEAD *Mind, Self and Society* (1934) conceives of development as being largely structural, whereas SELMAN *Soziales Verstehen* (1984) 68 and passim claims that progressing in the developmental stages goes hand in hand with mastering parts of contingent reality; see also BROWN *Human Universals* (1991)

230 BANDURA *Social Foundations* (1986) 100-102.

231 More from ANDERSON, BOTHELL, BYRNE and LEBIERE in *Psychological Review* (2003).

grown up under a different regime. Some countries have a hard time profiting from the opportunities of globalisation, and this may not only result from an opposing ideology, or from inappropriate formal or informal institutions. But none of this is more than hypothetical. Further empirical research on these issues is urgent.

IV. Conclusions

The original puzzles have been solved. It is possible for the law to govern behaviour without the addressees knowing the wording of the pertinent provisions. It is even less important for the addressees to be able to handle this text as professional lawyers would. This is due to the fact that the law reaches its addressees in indirect ways. Individuals follow social mirror rules, or they are guided by exemplars of law-abiding behaviour. The addressees mostly learn these compressions of legal rules by way of observation. The law is largely learned this way in childhood and adolescence. It goes hand in hand with the development of normative proficiency, i.e. with the ability to properly handle normative expectations in general. This primary learning of the law is supplemented by secondary learning. This takes place when an adult arrives in a new social context, or when there is legal reform. Legal reform stands out in that initially the necessary compressions are missing. Governance by law therefore crucially depends on the activities of the, mostly informal, intermediaries who generate these compressions.

This paper has been confined to governance by law. But its findings could be extended to complement our understanding of other governance tools. During primary learning, children and adolescents do not only learn normative expectations originating in the law; they learn all sorts of normative expectations. More generally even, they learn how to navigate in the contexts to which they are exposed. If this exposure is not exceptional, they are likely to develop routines. Again, one can put the effect in even more general terms. What originally was meant to be a restriction is likely to be seen as a definitional feature of the specific context by those who newly orient themselves within it. Thus institutions can become taken-for-granted by their addressees precisely because those individuals need to learn how to act normatively with quick and convenient rules. But in all likelihood not all institutions will translate themselves into features of the context in the same way. Take a regulatory tax. Will it translate into a normative expectation at all? If not, it will not be able to rely on normative proficiency in effecting behaviour. It would have to make an impact via other procedural knowledge, probably the knowledge used for financial decision-making. A learning perspective thus opens up a new perspective for institutional comparisons. It is potentially of great importance for institutional design.

One may even push learning analysis one step further. In a design perspective, institutions respond to unresolved social problems. Consequently, institutional analysis must start with a definition of the social problem. This is typically done by abstract analysis. Such analysis is implicitly or explicitly based on behavioural assumptions; and it shows why a social dilemma is logical. Institutions are then designed to provide a remedy to the original problem. From the vantage point of learning psychology, this approach is not fully appropriate. If the bulk of behaviour is shaped by

primary learning, the social problem must begin to be defined here. The result may be the same. But this only holds if primary learning transmits the behavioural dispositions that have been assumed in analysis. Put differently, a learning perspective introduces a heavy dose of historical contingency into the analysis of social problems. Or yet differently, it stresses the empirical component in this definitional exercise.

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