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2 **Philosophy of Learning**

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6 **Definition**

7 In philosophy, there is no such thing as a noncontroversial
8 definition. However, when it comes to learning, the prob-
9 lem is not with disagreement, but with a lack of debate.
10 While there are many philosophical discussions that are
11 relevant for developing a theory of learning, no such
12 theory is at the forefront of philosophical consciousness.

13 As such, we propose the following minimal definition
14 as the starting point for our discussion:

15 ▶ Learning is a process of knowledge acquisition, where
16 “knowledge” is construed broadly.

17 Next, we delineate five major questions that should
18 govern an area of philosophy properly called “philosophy
19 of learning.” Those questions are: (1) Is learning possible?;
20 (2) Is all knowledge acquired through learning?; (3) Where
21 do we draw the boundaries of learning?; (4) Are there
22 different kinds of knowledge that can be learned?; and
23 finally, (5) What are the prerequisites of learning? In this
24 context, we will review several philosophical debates that
25 are essential for establishing a theory of learning.

26 **Theoretical Background**

27 **Is Learning Possible?**

28 Though the question “is learning possible?” seems prepos-
29 terous, it is critical to note that at the beginning of
30 philosophy, for reasons that continue to plague modern
31 epistemologists, Plato insists that the answer to this ques-
32 tion is “no.” We should note that this paradoxical claim
33 follows from Plato’s narrow conception of knowledge. As
34 we shall see, knowledge, for Plato, does not include skills,
35 abilities, or beliefs concerning contingent truths.

36 In the *Meno*, Plato denies that learning is possible and
37 argues that what we commonly call learning is actually

recollection (*anamnesis*). In this dialogue, Socrates pro- 38
poses that the soul is immortal and has learned all there is 39
to know before its birth. Socrates demonstrates his theory 40
by leading Meno’s slave through a series of geometry 41
questions. Socrates shows that without having to “teach” 42
the boy anything, that is, without relating any facts or 43
explaining any principles to him, the boy grasps some 44
basic rules of geometry. This is meant to be a proof of 45
the theory of recollection because the slave did not pick up 46
knowledge externally, but found it in himself. Socrates 47
concludes that the boy must have already had the knowl- 48
edge within himself and was simply induced to recollect it. 49

A crucial aspect of the theory of recollection is its 50
connection to Plato’s theory of the Forms. It follows 51
from the fact that knowledge is of the Forms that recol- 52
lection is of those things that cannot be learned through 53
sense experience. Socrates illustrates this in the *Phaedo* 54
with the concept of “Equal.” His argument is grounded 55
in the fact that any particular instance of two things being 56
equal will never be an instance of perfect equality. All 57
particular instances will be deficient in some way because 58
there is no such thing as perfect equality in the natural 59
world. However, we do have the concept of Equal – 60
perfectly and exactly equal. Socrates concludes that since 61
we have never encountered absolute equality in experi- 62
ence, the concept must come from somewhere else. Hence, 63
again we are led to the theory of recollection: that which 64
cannot be learned through experience is already in us at 65
birth. 66

67 **Is All Knowledge Acquired Through Learning?**

68
69 Taking as its starting point the issues that Plato raises, the
70 question of what can and cannot be learned through
71 experience has constituted a major debate in modern
72 epistemology and is at the heart of the disagreement
73 between the rationalists (Descartes, Spinoza, and Leibniz)
74 and the empiricists (Locke, Berkeley, and Hume). The
75 rationalists, following Plato, claim that not all knowledge
76 can be acquired through experience and, thus, not all
77 knowledge can be learned. Knowledge that does not
78 come from experience is called *a priori* knowledge. 79
Two paradigm instances of *a priori* knowledge are the

80 necessary truths of mathematics and logic, and concepts
81 or universals. Since our knowledge of universals and
82 necessary truths cannot be the result of experience (recall
83 the example of “Equal” above), rationalists claim that it
84 must come from innate ideas and/or the reasoning that
85 allows us to move from one innate idea to another.

86 In contemporary debates, an example of rationalism
87 can be found in Noam Chomsky’s theory of universal
88 grammar. Though Chomsky does not posit innate prop-
89 ositional knowledge or concepts, he is committed to the
90 existence of innate organizing principles that are necessary
91 to account for our ability to acquire language. In this way,
92 Chomsky claims that what we can learn from experience is
93 not sufficient to explain what we come to know.

94 The empiricists, on the other hand, are committed to
95 the idea that all knowledge comes from experience. The
96 empiricists claim that everything we know, we learn as
97 a result of contact with the world and with our awareness
98 of that contact. Importantly, empiricists do not hold that
99 knowledge of universals or necessary truths can be
100 acquired through experience but, rather, they deny that
101 the nature of universals and necessary truths are as the
102 rationalists describe. For example, Hume argues that our
103 concept of causation is not really of one thing causing
104 another (since we never perceive causes) but only of con-
105 stant conjunction – of one thing regularly following
106 another. In this way, Hume reinterprets the concept
107 of causation so that it does not go beyond that which
108 we can learn empirically. Likewise, W.V. Quine,
109 a few hundred years later, has insisted that the truths of
110 math and logic are not about the world, but rather, about
111 our ideas. It would follow that there is nothing that we
112 can know about the world that does not begin with our
113 experience of it.

114 Notoriously, Kant has tried to split the difference
115 between empiricism and rationalism by arguing that we
116 need both experience and innate concepts for
117 a satisfactory epistemology. This is best exhibited by
118 Kant’s famous dictum, “Thoughts without content are
119 empty, intuitions without concepts are blind.” Kant argues
120 that neither innate concepts nor raw experience can
121 account for what we know. As such, learning requires
122 innate ideas to order our empirical experiences.

123 **Where Do We Draw the Boundaries of** 124 **Learning?**

125 Issues concerning *a priori* knowledge place limits on learn-
126 ing by claiming that we have in our possession knowledge
127 that cannot be learned through experience. However, there
128 are also important theoretical considerations regarding
129 the boundaries of a learning event. That is, there are

important considerations concerning which changes in 130
behavior are legitimate instances of learning. 131

If we grant that not every goal-related change in 132
behavior is an instance of learning, then this issue becomes 133
critical. For instance, it is important to consider whether 134
sensitization, classical conditioning, associative learning, 135
or the adaptive changes that occur through evolution 136
qualify as learning. After all, in these instances, we observe 137
changes in behavior that are goal-directed and sensitive to 138
environmental features. Even plants exhibit such behav- 139
ioral changes, but do these qualify as instances of learning? 140

This issue has been advanced by Fred Dretske and 141
developed in his exchange with Daniel Dennett. While 142
Dretske and Dennett both consider learning to be an 143
essential indicator of minimally rational behavior, they 144
disagree on which behavioral changes qualify as legitimate 145
instances of learning. Significantly, for both, learning plays 146
a crucial role in determining the behaviors that qualify as 147
cognitive or intelligent. 148

Dretske argues that behavior is minimally rational 149
when it is properly connected to reasons. Importantly, it 150
is learning that transforms bare informational states into 151
reasons for action. This is because learning requires that 152
a creature is able to pick out relevant environmental fea- 153
tures and, given its goals, respond appropriately to those 154
features. Learning illuminates that a creature is 155
responding with some degree of flexibility to states that 156
have acquired meaning for it. These qualities of flexibility 157
and meaningfulness, Dretske holds, are the hallmarks of 158
intelligent behavior. 159

Further, Dretske insists that learning must take place 160
during the course of a lifetime if it is to give rise to 161
minimally rational behavior. In response, Dennett has 162
argued that the time frame of a lifetime forwards an 163
arbitrary limit on learning. Dennett claims that changes 164
in behavior that amass over generations, that is, those that 165
are realized through evolution, exhibit the necessary log- 166
ical relations to shifting environmental conditions such 167
that they ought to qualify as learning. As such, species- 168
wide changes that occur through evolution would provide 169
the grounds for minimally rational behaviors. 170

171 **Are There Different Kinds of Knowledge?**

172 The fourth question that ought to frame a philosophy of
173 learning concerns the categorization of various knowledge
174 kinds. After all, the learning process and the knowledge
175 that results from that process presumably have an intimate
176 connection. As such, the kind of knowledge that we pos-
177 sess may tell us something about the kind of learning that
178 is required for its acquisition. Additionally, as we have seen

179 above, what qualifies as knowledge largely determines
180 what can properly be called learning.

181 There are important philosophical discussions
182 concerning introspective knowledge, knowledge by testi-
183 mony, conceptual and nonconceptual content, analogical
184 reasoning, implicit and tacit knowledge, perceptual
185 expertise, causal knowledge, and knowledge-how. Since
186 it is beyond the scope of this entry to evaluate every
187 philosophical discussion concerning knowledge types, we
188 will use the knowing-how/knowing-that debate as our
189 paradigm example. The distinction between knowing-
190 how and knowing-that is largely parallel to the distinction
191 between procedural and declarative knowledge found in
192 psychology. When it comes to the philosophical debate, an
193 opposition emerges between the intellectualists who argue
194 that knowledge-how is reducible to knowledge-that and
195 the anti-intellectualists who claim that knowledge-how
196 comprises a unique and irreducible knowledge kind.

197 The distinction between knowledge-how and knowl-
198 edge-that is first forwarded by Gilbert Ryle in *The Concept*
199 *of Mind* in 1949. Here, Ryle argues against the “intellectu-
200 alist legend,” which he describes as the position that the
201 intelligence of an action comes from the thoughts that we
202 entertain about it. Ryle argues that if propositional knowl-
203 edge were responsible for the intelligent or stupid appli-
204 cation of knowledge in action then an infinite regress
205 would ensue. Ryle claims that it is impossible that know-
206 ing how to do something requires first thinking of the rule
207 that governs the behavior of how to do it. For, if knowing-
208 how required contemplating a proposition in order to
209 know how to apply it, then one would also need to con-
210 template another proposition in order to know how to
211 properly contemplate the first proposition, and so on ad
212 infinitum.

213 The distinction between propositional thought and
214 ability became standard fare in philosophy until Jason
215 Stanley and Timothy Williamson forcefully challenged it
216 in their 2001 article, “Knowing How.” In that article,
217 Stanley and Williamson object to Ryle’s regress argument
218 and forward their own positive, intellectualist account of
219 knowing-how.

220 Stanley and Williamson claim that Ryle’s regress does
221 not comprise a threat because, in order for it to get off the
222 ground, it must apply to intentional actions. Further, since
223 not every contemplation of a proposition is intentional,
224 explaining knowing-how through appeal to propositional
225 thoughts will not necessarily spawn the feared regress. As
226 an alternative account, Stanley and Williamson propose
227 that knowing how to do something is a matter of enter-
228 taining a proposition about how to do it under a practical
229 mode of presentation.

Responses to the proposal that knowledge-how is
reducible to knowledge-that come in two general varieties:
(1) criticism of Stanley and Williamson’s positive thesis,
on behalf of the anti-intellectualists, and (2) criticisms of
Ryle’s equation of knowledge-how with an ability or dis-
position, on behalf of the intellectualists. The details of
this debate are critical for determining not only what
we learn, but also for understanding the nature of the
relationship between learning and knowledge.

Alva Noë, Tobias Rosefeldt, Michael Devitt, John
Koethe, and John Williams forward arguments that fall
into the first, anti-intellectualist category. Noë, Rosefeldt,
and Koethe all claim that “practical mode of presentation”
talk is really disguised talk of abilities or dispositions. As
such, they argue that Stanley and Williamson do not solve
the problem of knowing-how, but rather, incorporate it
into their own intellectualist story. This is because it is not
the content of the propositional knowledge that does the
heavy lifting for Stanley and Williamson, but rather, the
way that this knowledge is represented. However, the
details of how knowledge is represented under a practical
mode of presentation are missing from Stanley and
Williamson’s account.

Further, Devitt argues that it is implausible that all
agents that know how to do something possess
a corresponding singular concept that identifies *w* as the
way to do it. Devitt questions whether it is reasonable to
suppose that everyone who knows how to ride a bike,
catch a ball, think rationally, or speak meaningfully is in
possession of a sophisticated concept of how this is done.
Lastly, as both Williams and Koethe argue, Stanley and
Williamson’s positive account of knowing-how starts the
very regress that they claim knowing-how does not begin.
This is because for Stanley and Williamson, knowing-how
is cashed out in terms of intentionally entertaining
a proposition.

In contrast, the intellectualists attempt to cleave
knowledge-how from its manifestation in action in order
to show that knowing-how is simply another version of
knowing-that. To do this, intellectualists such as Paul
Snowdon, John Bengson, Marc Moffett, and Jennifer
Wright challenge Ryle’s assertion that knowing-how
implies ability. Snowdon offers several examples that sug-
gest that ability is neither necessary nor sufficient for
knowing-how attributions. To show that ability is not
necessary for knowing-how, Snowdon appeals to exam-
ples where agents lack the opportunity to put their knowl-
edge into practice. For instance, Snowdon knows how to
make Christmas pudding but he does not have the ability
to make Christmas pudding since the world’s supply of
sugar has been destroyed. To illustrate ability’s

281 insufficiency to generate knowledge-how, Snowdon
282 appeals to cases where one exercises an ability but only
283 by fluke or accident. In such a case, it would be highly
284 inappropriate to make a knowledge attribution. Further,
285 using experimental philosophy, Bengson, Moffett, and
286 Wright provide data indicating that ordinary people do
287 not require agents to have an ability in order to attribute to
288 them the corresponding knowledge-how.

289 The debate about knowing-how and knowing-that is
290 just one example of a philosophical discussion about
291 knowledge kinds, which has implications for a theory of
292 learning. We should notice that if knowledge-how is
293 reducible to knowledge-that, then any nonpropositional
294 aspect of ability will not qualify as knowledge and, as such,
295 will not be the result of learning.

296 What Are the Prerequisites of Learning?

297 In order to develop an adequate account of learning,
298 we must examine the requirements that the systems and
299 processes that perform learning have to fulfill. As such, we
300 must ask about the nature of systems that are responsible
301 for the input, processing, storage, and output stages of
302 learning. In this entry, we focus on the problem of repre-
303 sentation because this issue is relevant to all stages of
304 learning: It is relevant to the input stage of learning
305 because the features that are detected by an organism
306 must be represented by a system if it is going to be able
307 to adjust or respond to them. Further, representation is
308 relevant to the processing stage of learning since we must
309 understand how the transformations of learning occur.
310 When it comes to the memory or storage stage of learning,
311 we are once again forced to ask how the products of
312 learning are represented.

313 Representation is a central topic in philosophy of mind
314 and cognitive science. The classical view regarding the
315 nature of representation and information processing is
316 called computationalism. Computationalism is rooted in
317 a metaphor between the mind and a digital computer.
318 Accordingly, computationalism is committed to the idea
319 that the mind processes symbols and produces meaningful
320 states that are entirely determined by those symbols and
321 their relations. Crucially, the syntax of a state wholly
322 determines its semantics. Computationalism is famously
323 championed by Jerry Fodor, who claims that mental
324 representations have a language-like structure. Fodor
325 insists that the constituents of a representation are struc-
326 turally and compositionally just like the sentences of
327 a natural language except that they do not occur in natural
328 language, but rather, in the Language of Thought (LOT).

329 In opposition to computationalism, connectionism
330 has forwarded a theory of mental modeling where mental

representations are identical to the emergent processes of 331
interconnected networks composed of simple units. Using 332
neural networks where representations are stored 333
nonsymbolically in the weights between units, mental 334
states are seen as a dynamic evolution of activity in 335
a neural net. At the heart of connectionist models is the 336
idea that representations are distributed throughout the 337
network. Prominent philosophical exponents of this posi- 338
tion are David Rumelhart, James McClelland, Paul 339
Churchland, and Andy Clark. 340

Importantly, both types of representational systems 341
realized by cognitive modeling have advantages and 342
disadvantages. The subsymbolic architectures of connec- 343
tionist models are considered to be better at learning 344
associations, detecting simple grammatical structures, 345
and recognizing patterns. In contrast, symbolic architec- 346
tures are traditionally considered better at realizing 347
higher-level cognitive abilities such as those related to 348
language, reasoning, and problem solving. However, nei- 349
ther approach addresses how such information processes 350
are implemented in an actual human brain. 351

In an attempt to merge the strengths and avoid the 352
weaknesses of computationalism and connectionism, 353
a third hybrid view has emerged. This theory, often called 354
implementational connectionism, is committed to the 355
idea that neural networks implement symbolic processing 356
at a higher level of description. As such, neural networks 357
can retain the strengths associated with distributed 358
processing and also account for mental processes that 359
require a symbolic or compositional structure. 360

Important Scientific Research and Open 361 Questions 362

As always, in philosophy, we are left with more questions 363
than answers. These unresolved issues, however, are 364
instructive for elucidating the conceptual landscape that 365
we must traverse in order to develop an adequate theory of 366
learning. In this section, we will end by exploring four 367
questions that follow from the above discussions. 368

Is Knowledge That Is Not Acquired Through 369 Experience Not Learned? 370

In the previous discussion, we followed tradition by 371
claiming that knowledge that is not learned through 372
sense experience is not learned at all. It is important, 373
however, to distinguish between innate ideas, such as 374
propositional knowledge or concepts, and innate mecha- 375
nisms. Once we make this distinction, the question 376
becomes: is it possible that the innate mechanisms that 377
structure propositional knowledge and concepts ought to 378
be considered mechanisms of learning themselves? 379

380 Further, if we are committed to the notion that neces-
381 sary truths or concepts are innate, we must consider
382 whether the experiences that “trigger” a priori knowledge
383 count as learning. After all, the necessity that innate ideas
384 are manifest as the result of some sort of experience may
385 give us reason to conclude that that which stimulates those
386 ideas is itself a kind of learning. As such, even if knowledge
387 is not necessarily the direct result of experience, this does
388 not mean that it is not, in any meaningful way, related to
389 a learning process.

390 **Is There a Connection Between the Method** 391 **Through Which Knowledge Is Learned and** 392 **the Knowledge That Results from the** 393 **Learning Process?**

394 In order to learn the capitals of the South American
395 nations, one must sit down and memorize them. In
396 order to learn to play the piano, one must sit down and
397 practice. Is the knowledge that results from the first
398 method of learning necessarily different from the knowl-
399 edge that results from the second? It seems plausible that
400 the way something is learned can tell us something about
401 the nature of the resultant knowledge, but must this always
402 be the case? When I learn the alphabet through singing and
403 when I learn it through reading, are the alphabets that
404 I learn different in kind?

405 There seems to be compelling evidence in favor of
406 opposing answers to this question. It appears that there
407 are various methods for learning the same knowledge
408 (think innovative pedagogy). However, there also seem
409 to be particular methods that are exclusively suited for
410 other kinds of learning (think playing the piano). As such,
411 the questions remain: (1) Can examining the method of
412 learning tell us about the nature of knowledge acquired as
413 a result of that method? and (2) Is it possible that learning
414 may affect but not dictate the nature of knowledge, and, if
415 so, then what features of learning might affect the said
416 knowledge?

417 **Is There Some Foundational Type of** 418 **Learning on Which All Other Learning** 419 **Processes Are Based?**

420 Some psychological theories suggest that particular areas
421 of learning are reducible to other foundational types of
422 learning. However, it is an open question as to whether we
423 should consider learning to be a monolithic or
424 a heterogeneous phenomenon. We should ask whether
425 various knowledge kinds and the various learning pro-
426 cesses that lead to them can be combined into a unified
427 theory. We should ask whether it is possible that what we
428 ordinarily call learning may actually refer to various

independent processes. We should ask whether the mech- 429
anisms involved in, for example, learning to play soccer are 430
really identical to the mechanisms involved in learning 431
a multiplication table. 432

433 **Is Learning a Success Term? That Is, Can We** 434 **Learn Things Other Than Knowledge?**

435 Is it possible that learning is not simply a matter of knowl-
436 edge acquisition? Can one learn a false belief? Can one
437 learn a bad habit? The answers to these questions will
438 depend on whether we treat learning as a success term. 439
We should consider whether learning must be defined by
440 its results or whether the learning process can be defined
441 independently of them. Importantly, as we saw above, if
442 learning is knowledge acquisition then that which qualifies
443 as knowledge will determine what may qualify as learning.
444 If the scope of knowledge is narrow, then what counts as
445 learning will likewise be narrow. As such, we must ask
446 whether all learning ought to be defined by its results and,
447 if so, then how narrow or wide these results should be.

448 **Cross-References**

- ▶ Epistemology and Learning 449
- ▶ History of the Science of Learning 450
- ▶ Knowledge Representation 451
- ▶ Locke, John (1632–1704) 452
- ▶ Plato (429–347 BC) 453
- ▶ Skill Acquisition/Learning 454

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Uncorrected Proof