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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte LORENZO PASQUALIS, NIGEL GREEN, and
DANIEL KERNS

Appeal 2018-006260
Application 13/853,677
Technology Center 3700

Before JAMES P. CALVE, SUSAN L. C. MITCHELL, and
LISA M. GUIJT, *Administrative Patent Judges*.

GUIJT, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant¹ seeks our review under 35 U.S.C. § 134(a) of the rejection of claims 1–30 under 35 U.S.C. § 101 as being directed to patent ineligible subject matter. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies DreamBox Learning, Inc. as the real party in interest. Appeal Br. 2.

THE INVENTION

Appellant's invention relates to "Calendar-driven Sequencing of Academic Lessons." Spec., Title. Claims 1 and 20 are the independent claims on appeal. Claim 1, reproduced below with paragraph numbers added for ease of reference, is illustrative of the subject matter on appeal; claim 20 recites identical method steps in the body of the claim, however, the preamble of claim 20, also reproduced below, differs from the preamble of claim 1.

1. A computer-based method of delivering a sequence of learning objectives to a student in accordance with a received target date, the method comprising:

[(i)] maintaining a plurality of learning objectives, each learning objective having a weight that represents a difficulty or quantity of individual skills within the learning objective, each learning objective having prior learning objectives and subsequent learning objectives connected together in a hierarchical relationship of parent nodes and children nodes, at least one of the parent nodes having two or more children nodes;

[(ii)] establishing a target learning object by associating the target date with at least one of the learning objectives;

[(iii)] determining which of the plurality of learning objectives are prerequisites to the target learning objective based on the hierarchical relationship between the target learning objective and the other learning objectives;

[(iv)] comparing learning objectives completed by the student to the prerequisite learning objectives to determine a remaining number of learning objectives for the student to complete in order to achieve the target learning objective;

[(v)] summing the weights of the remaining number of learning objectives to determine a total skill weight for the student to acquire in order to being [sic] the target learning objective;

[(vi)] determining a rate of skill acquisition associated with the student per unit of time, wherein the determined rate of skill acquisition is based on measured interactions between the student and questions presented to the student, the measured interactions comprising one or more answer changes made by the student or one or more mouseovers made by the student;

[(vii)] determining an estimated time of completion for the prerequisite learning objectives for the student based on the remaining number of learning objectives and the rate of skill acquisition;

[(viii)] estimating a training time for the student, the training time including an average time the student will spend studying the learning objectives between a present time and the target date;

[(ix)] comparing the estimated training time for the student to the estimated time of completion of the prerequisite learning objectives; and

[(x)] if the estimated time of completion of prerequisite learning objectives is longer than the estimated learning time for the student, notifying an administrator.

20. A non-transitory computer-readable medium having instructions, which when executed by a processor of a computer system, cause the computing system to execute a method of delivering a sequence of learning objects to a student in accordance with a received target date, the method comprising:

[steps (i) to (x) *supra*]

OPINION

An invention is patent eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” *See* 35 U.S.C. § 101. However, the Supreme Court has long interpreted 35 U.S.C. § 101 to include implicit exceptions: “[I]aws of nature, natural phenomena, and abstract

ideas” are not patentable. *E.g.*, *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014).

In determining whether a claim falls within an excluded category, we are guided by the Supreme Court’s two-step framework, described in *Mayo* and *Alice*. *Id.* at 217–18 (citing *Mayo Collaborative Services v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)). In accordance with that framework, we first determine what concept the claim is “directed to.” *See Alice*, 573 U.S. at 219 (“On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement risk.”); *see also Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (“Claims 1 and 4 in petitioners’ application explain the basic concept of hedging, or protecting against risk.”).

Concepts determined to be abstract ideas, and thus patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as “molding rubber products” (*Diamond v. Diehr*, 450 U.S. 175, 191 (1981)); “tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores” (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S. 252, 267–68 (1854))); and manufacturing flour (*Benson*, 409 U.S. at 69 (citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

In *Diehr*, the claim at issue recited a mathematical formula, but the Supreme Court held that “[a] claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a

mathematical formula.” *Diehr*, 450 U.S. at 176, *see also id.* at 191 (“We view respondents’ claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula.”). Having said that, the Supreme Court also indicated that a claim “seeking patent protection for that formula in the abstract . . . is not accorded the protection of our patent laws, . . . and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment.” *Diehr*, 450 U.S. at 187 (“It is now commonplace that an *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.”), and *id.* at 191 (citing *Benson* and *Flook*).

If the claim is “directed to” an abstract idea, we turn to the second step of the *Alice* and *Mayo* framework, where “we must examine the elements of the claim to determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Alice*, 573 U.S. at 221 (citation omitted). “A claim that recites an abstract idea must include ‘additional features’ to ensure ‘that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].’” *Id.* (quoting *Mayo*, 566 U.S. at 77). “[M]erely [requiring] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention.” *Id.*

The PTO published revised guidance on the application of 35 U.S.C. § 101. *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (Jan. 7, 2019) (hereinafter “Revised 2019 Guidance, 84 Fed. Reg.”). Under that guidance, we first look to whether the claim recites: (1) any judicial exceptions, including certain groupings of abstract ideas (i.e.,

mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes); and (2) additional elements that integrate the judicial exception into a practical application (*see* Manual of Patent Examining Procedure (“MPEP”) § 2106.05(a)–(c), (e)–(h) (9th Ed., Rev. 08.2017 (Jan. 2018))). Only if a claim: (1) recites a judicial exception and also (2) does not integrate that exception into a practical application, do we then look to whether the claim (3) adds a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field or (4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception. *See generally* Revised 2019 Guidance, 84 Fed. Reg.; *see also* MPEP § 2106.05(d)).

The Examiner’s Prima Facie Case²

The Examiner finds that claims 1–30 recite a judicial exception to patent eligibility, namely, an abstract idea, and more specifically, an idea of itself that “educators” can perform the claimed method steps “using pen and paper,” (i.e., mentally). Final Act. 5–6; *see also id.* at 2–18; Ans. 2–18. In support, the Examiner describes many of the claim limitations of independent claims 1 and 20 as data processing steps (i.e., a series of operations on data, especially by a computer, to retrieve information from storage, transform information through mathematical correlations, or classify

² Although the Examiner’s Final Rejection (mailed January 26, 2017) and the Examiner’s Answer (mailed March 30, 2018) are dated prior to the publication of the Revised 2019 Guidance, the Examiner’s rejection of the claims pursuant to 35 U.S.C. § 101 as stated in the Final Rejection and the Examiner’s Answer is consistent with our application of Revised 2019 Guidance as set forth in this Decision.

information), which the Examiner finds similar to claim limitations determined by the Federal Circuit to be patent ineligible. Final Act. 4–5, 9–10 (citing, e.g., *Cyberfone Systems, LLC v. CNN Interactive Group, Inc.*, 558 F. App’x 988 (Fed. Cir. 2014) (nonprecedential) (identifying using categories to organize, store, and transmit information as abstract)³; *Cyber Source v. Retail Decisions, Inc.*, 654 F.3d 1366 (Fed. Cir. 2011) (identifying obtaining and comparing intangible data as abstract); *Smartgene, Inc. v. Advanced Biological Labs., S.A.*, 555 F. App’x 950 (Fed. Cir. 2014) (nonprecedential) (identifying comparing new and stored data, and using rules to identify medical options, as abstract); *Digitech Image Techs. LLC v. Elecs. for Imaging Inc.*, 758 F.3d 1344 (Fed. Cir. 2014) (identifying organizing information into a new form as abstract). The Examiner also finds that the claims, when analyzed individually and in combination, fail to recite any limitations, in addition to the claim limitations reciting mental steps, which amount to significantly more than the judicial exception itself. Final Act. 7. For example, the Examiner finds that measuring a time period associated with student interactions by analyzing mouseovers, as claimed, is “a generic computer function,” which the Examiner also finds is “routine and conventional in the art.” *Id.*

Appellant argues “the Examiner has failed to establish a *prima facie* case of subject matter ineligibility,” because the Examiner did not demonstrate that “the claimed concept . . . is similar to at least one concept

³ We are not persuaded by Appellant’s argument that because “*Cyberfone* is directed to a telephone/transaction entry device and system for entering transaction data into databases,” in comparison to Appellant’s claims involving steps for delivering a sequence of learning objectives to a student, *Cyberfone* is not instructive regarding whether data processing is abstract. Appeal Br. 13

that the courts have identified as an abstract idea.” Appeal Br. 11; Reply Br. 2–4.

We find that the Examiner established a *prima facie* case of subject matter ineligibility under 35 U.S.C. § 101 by notifying Appellant that the claims are directed to a judicial exception (i.e., an abstract idea) and sufficiently articulating, in an informative manner, that the claimed method steps may be performed using pen and paper (i.e., a mental process). *See In re Jung*, 637 F.3d 1356, 1362 (Fed. Cir. 2011) (holding that the USPTO carries its procedural burden of establishing a *prima facie* case when its rejection satisfies the notice requirements of 35 U.S.C. § 132 by notifying the applicant of the reasons for the rejection, “together with such information and references as may be useful in judging the propriety of continuing [] prosecution”). In other words, we do not agree with Appellant that the Examiner is further required to identify claims with similar concepts adjudged patent ineligible to state a *prima facie* case under 35 U.S.C. § 101 for subject matter ineligibility. Moreover, as set forth *supra*, the Examiner provides citations to cases deemed similar by the Examiner, with respect to claiming steps for processing data—cases that we agree support the Examiner’s *prima facie* case of subject matter ineligibility.

Analysis under the Revised 2019 Guidance

Step 1: Do the claims fall within a statutory category of § 101?

We examine whether the claims recite one of the enumerated statutory classes of subject matter, i.e., process, machine, manufacture, or composition of matter, eligible for patenting under 35 U.S.C. § 101. Claims 1–15 and 29 recite *a method* of delivering a sequence of learning objectives

to a student in accordance with a target date, and claims 20–28 and 30 recite *a non-transitory computer-readable medium* having instructions which, when executed by a processor of a computing system, cause the computing system to execute a method of delivering a sequence of learning objectives to a student in accordance with a received target date. Appeal Br. 22–29 (Claims App.). Therefore, the claims each recite a statutory class: a process or a manufacture under 35 U.S.C. § 101.

Step 2A, Prong One: Do the claims recite a judicial exception?

Next, we determine whether the claims recite subject matter falling within a judicial exception, for example, an abstract idea, wherein a grouping of subject matter within the category of abstract ideas is a mental process (i.e., “concepts performed in the human mind[□] (including an observation, evaluation, judgment, opinion)”). *See* Revised 2019 Guidance, 84 Fed. Reg. at 50–52.

The bodies of independent claims 1 and 20 both include method steps (i) to (x) for delivering a sequence of learning objectives to a student according to a target date for completing the objectives. In particular, step (i) requires, in relevant part, maintaining learning objectives that each have a weight representing a difficulty or quantity of individual skills, and also prior and subsequent learning objectives connected together in a hierarchical relationship of parent nodes and two or more children nodes. We find that this step is capable of being done in the human mind, in a practical manner, for example, by a teacher using judgment to organize a library of learning objectives, which are weighted and hierarchical, as claimed.

Step (ii) requires, in relevant part, establishing a target learning objective associated with at least one of the learning objectives, which we also find is capable of being done in the human mind, in a practical manner, for example, by a teacher using judgment to identify a learning objective from the learning objective library *supra*.

Steps (iii), (iv), and (v) require, in relevant part, determining which of the learning objectives are prerequisites to the target learning objective based on the hierarchical relationship between the target learning objective and the other learning objectives, comparing learning objectives completed by the student to the prerequisite learning objectives to determine a remaining number of learning objectives for the student to complete in order to achieve the target learning objective, and summing the weights of the learning objectives to be completed (or remaining) to determine a total skill weight for the student to acquire to begin the target learning objective. We find these steps can be done in the human mind, in a practical manner, for example, by a teacher evaluating the data and performing the required calculation of summing the weights to mentally, or with pen and paper, arrive at a total skill weight for the remaining objectives.

Step (vi) requires, in relevant part, determining a rate of skill acquisition associated with the student per unit of time based on measured interactions between the student and questions presented to the student, the measured interactions comprising one or more answer changes made by the student. We find this step can be done in the human mind, in a practical

manner, for example, by a teacher evaluating the answer change data for a student and using judgment to arrive at a rate of skill for the student.⁴

Steps (vii), (viii), (ix), and (x) require, in relevant part, determining an *estimated time of completion* for the prerequisite learning objectives for the student, which is based on the remaining number of learning objectives and the rate of skill acquisition for the student, and an *estimated training time* for the student, which includes an average time the student will spend studying the learning objectives between a present time and the target date, and next, comparing the estimated training time to the estimated time of completion, and if the estimated time of completion is longer than the estimated learning time, notifying an administrator. We find that these time-based analyses of the learning objective and rate of skill acquisition data are capable of being done in the human mind, in a practical manner, for example, by a teacher evaluating the relevant data and using judgment to mentally, or by using pen and paper, determine and inform an administrator as to whether the student will complete the learning objectives within the allotted training time.

In sum, steps (i) to (x) of claims 1 and 20, when considered individually and as a combination, involve mentally, or with pen and paper, the use of observation, evaluation, judgment, or opinion to perform a series of steps for determining a sequence of learning objectives for a student relative to a target date for their completion. Thus, we find that steps (i) to (x) recite *a mental process* for delivering a sequence of learning objectives to a student in accordance with a received target date, which is a grouping under the judicial exception of an abstract idea.

⁴ Notably, claims 1 and 20 do not recite a step for measuring student-question interactions, but only require determining a rate of skill acquisition based on such information.

The bodies of claims 2–4, which depend from independent claim 1, and claims 21–23, which depend from independent claim 20, recite, in relevant part, limitations for determining an optimal path between the learning objectives completed by the student and the target learning objective, for example, a path that has the fewest number of learning objectives or with the lowest total weight, and that does not include all of the remaining number of learning objectives. Appeal Br. 23, 27–28 (Claims App.). We find, consistent with the Examiner’s rejection, that optimizing the path as recited in these dependent claims are steps capable of being done in the human mind, in a practical manner, for example, by a teacher analyzing learning path options and using judgment to determine an optimal path for a student. Final Act. 12–13, 15–18; Ans. 12–13, 15–18. Thus, we find that dependent claims 2–4 and 21–23 recite a mental process, which is a grouping under the judicial exception of an abstract idea.

The bodies of claims 5 and 6, which depend from independent claim 1, and claim 24, which depends from independent claim 20, recite, in relevant part, that “the one or more target dates” marks a single day on which the target learning objective begins or is completed, or a range of calendar dates defining a time frame within which the student is scheduled to work on the target learning objective. Appeal Br. 23–24, 28 (Claims App.). Notably, the claim language “the one or more target dates” lacks antecedent basis with respect to claiming *more than one* target date, as independent claims 1 and 20 recite *only a singular* target date (i.e., “a received target date”) in the preamble of the claims, and only refer to the singular target date (i.e., “the target date”) in the bodies of the claims. *Id.* at 22–23, 26–27. Notwithstanding, we find, consistent with the Examiner’s

rejection, that such further definitions of the claimed target date are steps capable of being done in the human mind, in a practical manner, for example, by a teacher, using pen and paper, to use judgment to identify such date(s) on a calendar for planning the beginning, duration, and completion of student learning objectives. Final Act. 13, 16–18; Ans. 13, 16–18. Thus, we find that dependent claims 5, 6, and 24 recite a mental process, which is a grouping under the judicial exception of an abstract idea.

The bodies of claims 7–11, which depend from independent claim 1, and claims 25 and 26, which depend from independent claim 20, recite, in relevant part, limitations for further determining and/or updating the rate of skill acquisition for a student, by initially using an average rate of skill acquisition of students from the same classroom or in the same grade at the same school, state, or country, or by periodically updating the rate of skill acquisition for a student upon completion of each skill, lesson, or standard, or based on a predetermined period of time. Appeal Br. 24, 28 (Claims App.). We find, consistent with the Examiner’s rejection, that these further instructions for calculating the claimed rate of skill acquisition for a student are steps capable of being done in the human mind, in a practical manner, for example, by a teacher, using pen and paper. Final Act. 13–14, 16–18; Ans. 13–14, 16–18. Thus, we find that dependent claims 7–11, 25, and 26 recite a mental process, which is a grouping under the judicial exception of an abstract idea.

The bodies of claim 12, which depends from independent claim 1, and claim 27, which depends from independent claim 20, recite, in relevant part, limitations for periodically updating values of the weights based on observed effort exerted by a group of students to complete the learning objectives.

Appeal Br. 24, 28 (Claims App.). We find, consistent with the Examiner's rejection, that these further instructions for calculating the claimed weight representing a difficulty or quantity of individual skills within the learning objective are steps capable of being done in the human mind, in a practical manner, for example, by a teacher observing the ease or difficulty with which the students complete learning objectives, and making a judgment about the effort exerted by the students. Final Act. 14, 16–18; Ans. 14, 16–18. The Specification indicates student efforts can be measured by the time it takes to complete a learning objective as weight values. *See* Spec. ¶ 31. Thus, we find that dependent claims 12 and 27 recite a mental process, which is a grouping under the judicial exception of an abstract idea.

The bodies of claims 13, 14, 17, and 18, which depend from independent claim 1, recite, in relevant part, further instructions for estimating a student's training time based on the student's past performance and also instructions for adjusting the estimated training time to account for holidays and vacation breaks from school, and additionally, scheduling fewer or additional lesson objectives depending on a comparison of the estimated training time to the estimated time of completion. Appeal Br. 25 (Claims App.). We find, consistent with the Examiner's rejection, that these limitations are steps capable of being done in the human mind, in a practical manner, for example, by a teacher, using pen and paper, to evaluate a student's past performance and to use judgment to factor breaks from learning into the estimated training time, and to further use judgment to optimize the number of lesson objectives based on a comparison between the estimated training time to the estimated time of completion. Final Act. 14–15, 17–18; Ans. 14–15, 17–18. Thus, we find that dependent claims 13, 14,

17, and 18 recite a mental process, which is a grouping under the judicial exception of an abstract idea.

The bodies of claims 15, 16, and 19, which depend from independent claim 1, and claim 28, which depends from independent claim 20, recite, in relevant part, further instructions for notifying the administrator, including identifying a portion of a learning objective on which the student performs poorly or a decrease of the rate of skill acquisition, and also displaying both a comparison of the rate of skill acquisition of the student with an average rate of skill acquisition of classmates of the student and also suggestions for remedial actions, wherein the administrator may further be a parent or teacher of the student who responds by providing supplemental lessons to the student. Appeal Br. 25, 26, 29 (Claims App.). We find, consistent with the Examiner's rejection, that identifying information regarding a student's performance and displaying a qualification of the information and suggested remedial actions for notification to an administrator (i.e., a parent or teacher) who may follow the suggestions by providing supplemental lessons are steps capable of being done in the human mind, in a practical manner, for example, by a teacher, using pen and paper. Final Act. 13, 16–18; Ans. 13, 16–18. Thus, we find that dependent claims 15, 16, 19, and 28 recite a mental process, which is a grouping under the judicial exception of an abstract idea.

Finally, the bodies of claim 29, which depends from claim 1, and claim 30, which depends from claim 20, recite, in relevant part, a definition for the measured interactions as comprising a number of responses made by the student before a correct answer to a question is selected. Appeal Br. 29 (Claims App.). We find, consistent with the Examiner's rejection, that this

definition may be applied in the human mind, in a practical manner, for example, by a teacher, using pen and paper, to evaluate (or calculate) the measured interactions as claimed. Final Act. 13, 16–18; Ans. 13, 16–18. Thus, we find that dependent claims 15, 16, 19, and 28 recite a mental process, which is a grouping under the judicial exception of an abstract idea.

Appellant argues that, unlike the cases cited by the Examiner *supra*, which identify aspects of data processing as abstract ideas, the present claims “recite the generation of a new type of information—i.e., a **rate of skill acquisition** associated with a student per unit of time—that is created anew based on questions presented to the student and measured interactions between the student and questions presented to the student,” wherein “the measured interactions comprise one or more changes made by the student or one or more mouseovers made by the student.” Appeal Br. 13–14.

Appellant submits “the creation of a new rate of skill acquisition . . . goes beyond the obtaining, comparing, and organizing steps in the cited cases on which the Examiner relies” (*id.* at 14), and thus, the claims “are not directed to an abstract concept” (*id.* at 15).

We are not persuaded by Appellant, however, that inventing and claiming a purportedly new metric (i.e., new information for providing a standard of measurement) results in the claimed steps, individually and in combination, no longer reciting a mental process. In other words, the claimed steps still recite steps capable of being done in the human mind, or by using pen and paper, regardless of whether the claimed steps use information that is known or newly created. Further, Appellant’s argument that the Examiner errs by finding that the claimed *basis* for determining the purportedly new metric (i.e., by measuring student-question interactions, and

in particular, answer changes or mouseovers made by the student presented with questions) is gathering and tabulating data, lacks sufficient support. Rather, we agree with the Examiner's finding.

Appellant also argues that “unlike the ‘fundamental building block[s] of human ingenuity’ at issue in claims of *Alice*, *Bilski*, *Flook*, and *Benson*,” the present claims are not preemptive, because, similar to *Diehr*, “the claimed system is so specific that it cannot be said to preempt a fundamental, abstract concept.” Appeal Br. 15. We are not persuaded by Appellant's argument. As the Examiner correctly explains, although the Supreme Court has described “the concern that drives [the exclusion of abstract ideas from patent-eligible subject matter] as one of pre-emption” (*Alice Corp.*, 573 U.S. at 216), “the absence of complete preemption does not demonstrate patent eligibility” (*Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371 (Fed. Cir. 2015) (citing *Alice Corp.*, 573 U.S. at 216)). Ans. 23. Moreover, “where a patent's claims are deemed only to disclose patent ineligible subject matter under the *Alice* framework, as they are in this case, preemption concerns are fully addressed and made moot.” *Two-Way Media Ltd. v. Comcast Cable Commc 'ns, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017). Here, as discussed *infra*, the claims are directed to a mental process without reciting significantly more than the mental process itself, and therefore, are deemed only to recite patent ineligible subject matter. Nor can we find any basis in support of Appellant's argument that the narrow scope of the claims provides patent eligibility where the claims recite only abstract ideas. See *BSG Tech LLC v. BuySeasons, Inc.*, 899 F.3d 1281, 1291 (Fed. Cir. 2018) (“As a matter of law, narrowing or reformulating an abstract idea does not add ‘significantly more’ to it.”); *Synopsys, Inc. v. Mentor*

Graphics Corp., 839 F.3d 1138, 1151 (Fed. Cir. 2016) (“But, a claim for a *new* abstract idea is still an abstract idea.”).

Appellant further argues that “the facts of Appellant’s claimed subject matter do not ‘uniquely match’ the facts at issue in *Cyberfone*,” because the present claims “recite[] a method of delivering a sequence of learning objectives to a student in accordance with a received target date . . . ,” as compared to *Cyberfone*’s claims, which are “directed to a telephone/transaction entry device and system for entering transaction data into databases.” Appeal Br. 13. However, the distinguishable contexts of the mental process steps (which involve data processing) as set forth in the present claims and compared to the claims of *Cyberfone* does not remove *Cyberfone* from being instructive with respect to whether data processing steps are abstract ideas. *See also id.* at 14 (arguing that “Appellant’s claims are not directed to any idea that can reasonably be considered abstract,” because Appellant’s claimed invention does not recite the *same* abstract idea as identified by the Supreme Court in *Alice*, *Bilski*, *Flook*, and *Benson*). Indeed, *Cyberfone* makes clear that “methods that can be performed in the human mind alone are not eligible for patent protection.” *Cyberfone*, 558 F. App’x at 992.

Appellant further argues that “the complexity of Appellant’s claims . . . involve a level of inherent complexity that is not conducive to being performed mentally.” Appeal Br. 15–16. Again, we are not persuaded by Appellant’s arguments. Appellant lists the limitations of claim 1, but fails to otherwise identify any claim limitations that could not be practically performed in the human mind, or by using pen and paper. Rather, we find that the steps discussed *supra* are not so complex as to prevent their

performance in the human mind, or by using pen and paper, in a practical manner.⁵

Accordingly, we find that the claims recite a mental process: a method for delivering a sequence of learning objectives to a student in accordance with a received target date.

Step 2A, Prong Two: Do the claims recite additional elements that integrate the judicial exceptions into a “practical application”?

Following our Office guidance, having found that the claims recite a judicial exception, we next determine whether the claim recites “additional elements that integrate the exception into a practical application” (*see* MPEP §§ 2106.05(a)-(c), (e)-(h)). *See* Revised 2019 Guidance, 84 Fed. Reg. at 54.

As an initial matter, we consider whether the recitations of computer devices in the preambles of claims 1 and 20 are limiting. For example, the preamble of independent claim 1 recites “[a] *computer-based* method of delivering a sequence of learning objectives to a student with a received target date” (emphasis added), and the preamble of independent claim 20 recites “[a] *non-transitory computer-readable medium* having instructions which, when executed by a processor of a computing system, cause the computing system to execute a method of delivering a sequence of learning objectives to a student with a received target date” (emphasis added).

⁵ Notably, to the extent there are claim limitations *in addition to the claim limitations discussed pursuant to Step 2A, Prong One*, which may not be practically performed in the human mind, such claim limitations would not negate our findings relative to the claim limitations discussed pursuant to Step 2A, Prong One, but would be relevant to our analysis under Step 2A, Prong Two.

We interpret Appellant’s claims, during examination, according to their broadest reasonable interpretation consistent with the Specification. *In re ICON Health & Fitness*, 496 F.3d 1374, 1379 (Fed. Cir. 2007).

“Generally, the preamble does not limit the claims.” *Georgetown Rail Equip. Co. v. Holland L.P.*, 867 F.3d 1229, 1236 (Fed. Cir. 2017) (quoting *Allen Eng’g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1346 (Fed. Cir. 2002)). In determining whether a preamble is limiting, our reviewing court instructs us to consider whether the preamble is “necessary to give life, meaning and vitality” to the claim. *C.W. Zumbiel Co. v. Kappos*, 702 F.3d 1371, 1385 (Fed. Cir. 2012) (citation omitted).

Thus, we consider the limitations in the bodies of claims 1 and 20 to determine whether the method steps require a computer platform, or put another way, whether a computer platform is necessary to give meaning to the method steps recited in the bodies of the claims. The only reference to computer devices recited in the method steps of the bodies of claims 1 and 20 is the reference to mouseovers in step (vi): “determining a rate of skill acquisition associated with the student per unit of time, wherein the determined rate of skill acquisition is based on measured interactions between the student and questions presented to the student, the measured interactions comprising . . . one or more mouseovers made by the student.” The Specification discloses that “interactions monitored by the student assessment engine 118 may include, among other things, . . . mouse overs, and other indications of hesitation or uncertainty” (Spec. ¶ 24), and also that “hardware 900 may include one or more user input device 906 (e.g., . . . a mouse . . .)” (*id.* ¶ 70). However, step (vi) does not require *using* a mouse, but rather, only requires determining a rate of skill acquisition based on data

that may be generated, ultimately, by a student using a mouse. Thus, we find that the recitation of mouseovers does not make a computer platform, as recited in the preambles of claims 1 and 20, limiting to the claimed inventions, as a computer platform is not required to give meaning to (or to perform the method steps recited in) the bodies of claims 1 and 20.

Notwithstanding the non-limiting nature of the preambles of claims 1 and 20, simply reciting generic computer components that perform in generic manners does not integrate an abstract idea into a practical application. *See, e.g., Alice*, 573 U.S. at 223 (“[T]he mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.”); *see also* 2019 Eligibility Guidance (identifying “merely us[ing] a computer as a tool to perform an abstract idea” as an example of when an abstract idea has not been integrated into a practical application). Here, the recitations in the preambles of claims 1 and 20 of computer devices are generic with respect to the functioning of the computer-based method and non-transitory computer-readable medium. In other words, even giving the preambles patentable weight, the recitation of a computer-based method or non-transitory computer-readable medium does not integrate the mental process recited in the bodies of the claims into a practical application of the mental process.

Notably, claim 19, which depends from independent claim 1, recites, in relevant part, “receiving a supplemental instruction request . . . via a user interface.” Appeal Br. 26. The Specification discloses that “[f]or interface with a user or operator, the hardware 900 may include one or more user input devices 906 (e.g., a keyboard, a mouse, a scanner etc.).” Spec. ¶ 70. Thus, we find that claim 19 requires a computer platform (i.e., a “computer-

based method,” as set forth in the preamble), and also a user interface that is a computer device. However, because the claimed user interface is a generic computer component that performs in a generic manner, similar to the recited computer-based method, recitation of the user interface in claim 19 does not integrate the mental process into a practical application.

With the exception of dependent claim 19, we do not find any further limitations recited in the dependent claims analyzed *supra*, which are *in addition to* the mental process itself, and which may be considered to determine whether such additional limitations integrate the mental process into a practical application. For example, regarding the claim term “displaying” in dependent claims 16 and 28, we find that because information may be displayed by using pen and paper, in addition to a computer display device, the claim term “displaying” does not require a computer platform. Appeal Br. 25, 29 (claims 16, 28); *cf.* Spec. ¶ 15 (“I/O devices 108 may include output devices such as a display”); ¶ 70 (“display 908 (e.g., a Liquid Crystal Display (LCDE) panel)”). In other words, a preamble reciting performance of the claimed method on a computer platform is not necessary to give meaning to the claim. *See Univ. of Florida Research Found., Inc. v. General Electric Co.*, 916 F.3d 1363, 1367 (Fed. Cir. 2019) (holding that automation of “pen and paper methodologies” is a quintessential “do it on a computer” patent that recites an abstract idea).

Accordingly, we find the claims are directed to the judicial exception of an abstract idea, and more particularly, a mental process for delivering a sequence of learning objectives to a student in accordance with a received target date.

Step 2B: Does claim 1 recite an “inventive concept” or “significantly more”?

We next consider whether the claims recite any elements, individually or as an ordered combination, that transform the abstract idea into a patent eligible application, e.g., by providing an inventive concept. *Alice*, 573 U.S. at 217–18. The guidance similarly states, under Step 2B, “examiners should . . . evaluate the additional elements individually and in combination . . . to determine whether they provide an inventive concept (*i.e.*, whether the additional elements amount to significantly more than the exception itself).” 2019 Revised Guidance, 84 Fed. Reg. at 56 (emphasis added).

Appellant argues that “[the] claimed steps are not familiar mental steps that humans have previously performed, and that are now implemented on a computer.” Appeal Br. 15. In other words, Appellant argues that the claims “recite a novel combination of features beyond the abstract idea.” *Id.* at 17; *see also id.* at 18–19 (reciting the methods steps of claims 1 and 20). Appellant also argues that “[t]he claims recite features that are meaningful” and that “the detailed technical features describing various instructions for delivering a sequence of learning objects to a student in accordance with a received target date strongly indicate that the claims recite concrete practical applications that are significantly more than claiming an idea itself.” Reply Br. 4. Appellant also submits that the Examiner fails to provide factual support for any finding that a claim limitation recites conventional routine, or well-understood activities. *Id.* at 5.

To the extent Appellant argues that the claims necessarily contain an “inventive concept” based on their alleged novelty and non-obviousness over the prior art, this argument is unpersuasive. Although the second step

in the *Alice/Mayo* framework is termed a search for an “inventive concept,” the analysis is not an evaluation of novelty or non-obviousness, but rather, a search for “an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *Alice*, 134 S. Ct. at 2355. A novel and nonobvious claim directed to a purely abstract idea is, nonetheless, patent-ineligible. *See Mayo*, 566 U.S. at 90. Thus, Appellant’s argument is not persuasive.

Further, simply implementing the recited mental process on a computer is insufficient to transform the claimed mental process into a patent eligible application, because, as discussed *supra*, the additional elements referring to a computer platform in the preambles of the claims (if given patentable weight), and also the recitation of a user interface in dependent claim 19, involve only the *conventional* use of computing components. *See, e.g.*, MPEP § 2106.05(d) (“[i]f . . . the additional element. . . is no more than well-understood, routine, conventional activities previously known to the industry, which is recited at a high level of generality, then this consideration does not favor eligibility”). The Specification itself provides sufficient evidence that claim limitations involving computer devices involve only the conventional use of such computer devices, as discussed *supra*.

Accordingly, we sustain the Examiner’s rejection of claims 1–30 as directed to patent-ineligible subject matter under 35 U.S.C. § 101.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)	Affirmed	Reversed
1-30	101	Patent eligibility	1-30	

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED