Citation: Deck Chair Learning Systems, Inc. (Re), 2021 CACP 22

Commissioner's Decision #1575
Décision du commissaire nº1575
Date: 2021-05-04

TOPIC:	J-00	Meaning of Art
	J-50	Mere Plan
SUJET:	J-00	Signification de la technique
	J-50	Simple Plan

Application No. : 2,745,993

Demande nº 2 745 993

IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 2,745,993, having been rejected under subsection 30(3) of the *Patent Rules* (SOR/96-423) as they read immediately before October 30, 2019, has consequently been reviewed in accordance with paragraph 199(3)(c) of the *Patent Rules* (SOR/2019-251). The recommendation of the Patent Appeal Board and the decision of the Commissioner are to allow the application.

Agent for the Applicant:

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INTRODUCTION

[1] This recommendation concerns the review of rejected Canadian patent application number 2,745,993 which is entitled "ELECTRONIC LEARNING SYSTEM" and is owned by DECK CHAIR LEARNING SYSTEMS INC. ("the Applicant").

[2] A review of the rejected application has been conducted by the Patent Appeal Board ("the Board") pursuant to paragraph 199(3)(c) of the *Patent Rules* (SOR/2019-251). As explained in more detail below, my recommendation to the Commissioner of Patents is to allow the application.

BACKGROUND

The application

[3] Canadian patent application 2,745,993, based on a previously filed Patent Cooperation Treaty application, is considered to have a filing date of November 24, 2009, and was laid open to public inspection on July 1, 2010.

[4] The application relates to electronic learning systems. More specifically, it relates to electronic learning systems of presenting question items of an electronic learning curriculum to users and calculating user competency measures based on response accuracy and completion time for each question item.

Prosecution history

[5] On September 18, 2017, a Final Action ("FA") was issued pursuant to subsection 30(4) of the *Patent Rules* (SOR/96-423) as they read immediately before October 30, 2019, in which the application was rejected on the basis of non-statutory subject-matter. The FA stated that claims 1 to 38 on file, dated June 3, 2015, did not comply with section 2 of the *Patent Act.*

[6] On February 26, 2018, a response to the FA ("R-FA") was filed by the Applicant. In the R-FA, the Applicant argued that the claims were directed to patentable subject-matter and complied with section 2 of the *Patent Act*.

[7] Since the Examiner maintained the position that the application did not comply with section 2 of the *Patent Act* after considering the R-FA, as indicated in a Summary of Reasons ("SOR"), the application was forwarded to the Board on November 27, 2018.

[8] The SOR was forwarded to the Applicant on December 4, 2018.

[9] In a letter dated December 28, 2018, the Applicant indicated their continued interest in the application being reviewed by the Board. The Applicant also argued that the SOR did not address their submissions regarding the essentiality of "time measurement technology to the claimed solution" and further argued in favour of the claims being allowable.

[10] The undersigned was assigned to review the rejected application on behalf of the Commissioner of Patents under paragraph 199(3)(c) of the *Patent Rules* (SOR/2019-251). Given my recommendation, as shown below, that the rejection be withdrawn and the application allowed, no further written or oral submissions from the Applicant are necessary.

ISSUE

[11] There is only one issue to be considered in this review with respect to the claims on file: whether the claims define patentable subject-matter, as required by the *Patent Act*.

LEGAL PRINCIPLES AND PATENT OFFICE PRACTICE

Purposive construction

[12] In accordance with *Free World Trust v Électro Santé Inc*, 2000 SCC 66 and *Whirlpool Corp v Camco Inc*, 2000 SCC 67, purposive construction is performed from the point of view of the person skilled in the art in light of the relevant common general knowledge (CGK), considering the whole of the disclosure including the specification and drawings. In addition to interpreting the meaning of the terms of a claim, purposive construction distinguishes the essential elements of the claim from the non-essential elements. Whether or not an element is essential depends both on the intent expressed in or inferred from the claim, and on whether it would have been obvious to the skilled person that a variant has a material effect upon the way the invention works.

[13] "Patentable subject matter under the *Patent Act*" (CIPO, November 2020) [*PN2020–04*] also discusses the application of these principles, pointing out that all elements set out in a claim are presumed essential unless it is established otherwise or such presumption is contrary to the claim language.

Patentable subject-matter

[14] The definition of invention is set out in section 2 of the *Patent Act:*

> ***invention*** means any new and useful art, process, machine, manufacture or composition of matter, or any new and useful improvement in any art, process, machine, manufacture or composition of matter.

[15] Subsection 27(8) of the *Patent Act* also prescribes that:

> No patent shall be granted for any mere scientific principle or abstract theorem.

[16] *PN2020-04* clarifies examination practice with respect to the Patent Office's understanding of the legal principles applicable in determining whether the subject-matter defined by a claim is patentable subject-matter:

> To be both patentable subject-matter and not be prohibited under subsection 27(8) of the *Patent Act*, the subject-matter defined by a claim must be limited to or narrower than an actual invention that either has physical existence or manifests a discernible physical effect or change and that relates to the manual or productive arts, meaning those arts involving or concerned with applied and industrial sciences as distinguished in particular from the fine arts or works of art that are inventive only in an artistic or aesthetic sense.

[17] *PN2020-04* further describes the Patent Office's approach to determining if a computer-related invention is patentable subject-matter. For example, the mere fact that a computer is among the essential elements of the claimed invention does not necessarily mean that the claimed invention is patentable subject-matter. An algorithm itself is abstract and unpatentable subject-matter. A computer programmed to merely processes the algorithm in a well-known manner without solving any problem in the functioning of the computer will not make it patentable subject-matter because the computer and the algorithm do not form part of a single actual invention that solves a problem related to the manual or productive arts. On the other hand, if processing the algorithm improves the functionality of the computer, then the computer and the algorithm would together form a single actual invention that solves a problem related to the manual or productive arts and the subject matter defined by the claim would be patentable.

ANALYSIS

Purposive construction

[18] There are 38 claims on file, including independent claims 1, 18, 19, and 33. For this analysis, claim 1 is considered to be representative:

1. A non-transitory machine-readable medium storing instructions for presenting a question item of an electronic learning curriculum, said instructions, when executed by a processor of a computing device, causing said computing device to:

(a) retrieve from a data store a question item comprising:

textual, visual or auditory subject matter;

a query or instruction pertaining to said subject matter; and

a representation of a response mechanism for receiving a user response to said query or instruction;

(b) present said subject matter, said query or instruction and said response mechanism in a presentation sequence, wherein a presentation duration of each of said subject matter, said query or instruction and said response mechanism in said presentation sequence is controlled by, and is measured on the basis of, user input for advancing through the presentation sequence;

(c) based on said user input, determine:

a presentation duration of said subject matter by measuring a duration of display of the subject matter;

a presentation duration of said query or instruction by measuring a duration of display of the query or instruction; and

a presentation duration of said response mechanism by measuring a duration of display of the response mechanism;

(d) store indicators of each of said three presentation durations;

(e) receive a user response to said query or instruction via said response mechanism;

(f) ascertain a response accuracy based on said response and at least one predetermined correct response;

(g) determine a completion time for said question item based on one or more of said presentation duration of said subject matter, said presentation duration of said query or instruction and said presentation duration of said response mechanism; and

(h) store said response accuracy and said completion time for said current trial,

wherein said instructions cause said computing device to present said question item S times by performing (b)-(h) for each of S trials, S being an integer greater than one, and to:

(i) calculate an average response accuracy for said question item based on the stored response accuracies of said S trials;

(j) calculate an average completion time for said question item based on the stored completion times of only the ones of said S trials in which a correct user response was given;

(k) calculate a relative average completion time for said question item based on said average completion time and either one or both of a predetermined minimum completion time for said question item and a predetermined maximum completion time for said question item; and

> (i) calculate a user competency measure for said question item based on said average response accuracy and said relative average completion time.

[19] Independent claims 18, 19, and 33 recite similar features as claim 1. Dependent claims 2 to 17, 20 to 32, and 34 to 38, which are directly or indirectly dependent upon claims 1, 18, 19, and 33, recite further limitations.

The person skilled in the art and their CGK

[20] For this review, the person skilled in the art and their CGK was identified as stated in the FA (page 2):

> The skilled person or persons may consist of information technology engineers familiar with the design of electronic learning systems that present a curriculum to a user. The skilled person also has knowledge of the design of curricula and evaluation tests for students including means for measuring the duration a student spends at a picture or the duration required by a student to read and understand a question or the duration a student needs to answer a question.
>
> As described in the background of the invention, computer-based electronic learning systems are well known in the art (page 1, par. [0002]). It is also well known in the art that a typical curriculum consists of multiple question items wherein each question item typically includes a query or instruction and a response mechanism for receiving a user response to the query or instruction.
>
> Moreover, it is common knowledge in the art for such an electronic learning system to present a question item to a user wherein the query or instruction and response mechanism are typically displayed at the same time, e.g. on a single computer screen. The user's response is recorded, along with a measured totality of elapsed time between presentation of the question item and the entry of a user response. A user proficiency measure may be generated based on the accuracy of the user's responses and the recorded time (page 1, par [0003]).

[21] The Applicant has not disputed this characterization and it is adopted for this review.

[22] In my view, based on the "BACKGROUND" section of the present application and the identification of the CGK in the FA, the following knowledge is considered as CGK:

- Knowledge regarding design, implementation, operation, and maintenance of a computerized electronic learning system using conventional computer technologies and conventional communications networks, said system including
  - means to present subject-matter, query or instructions, and response mechanism of each question item to a user;
  - means to record overall response time for each question item using conventional time measurement techniques; and

- means to collect user responses for each question item;

- Knowledge regarding design and implementation of learning curricula used in electronic learning systems, each curriculum comprising multiple question items with predetermined evaluation parameters; and
- Knowledge of evaluating user responses to question items using evaluation algorithms.

Essential elements

[23] The FA (pages 2 to 3) performed a purposive construction that resulted in a set of essential elements for certain claims according to a previous Patent Office practice, now superseded by *PN2020-04*. I undertake anew the identification of essential elements.

[24] According to *PN2020-04*, purposive construction is conducted by considering where the skilled person would have understood the Applicant to have intended to place the fences around the monopoly being claimed.

[25] Considering the whole of the specification, the skilled person would understand that there is no use of language in the claims indicating that any of the elements are optional, a preferred embodiment, one of a list of alternatives, or non-essential. Therefore, all elements recited in each of the claims are presumed to be essential.

Patentable subject-matter

[26] In the FA (pages 3 to 4), having identified that the essential elements of the claims on file were directed to abstract rules or scheme for presenting question items, the Examiner considered that the claims on file fell outside of the categories of invention in section 2 of the *Patent Act*.

[27] Given that my view of essential elements differs from that of the FA, as shown in paragraphs [24] to [25], I undertake anew the assessment of patentable subject-matter according to *PN2020-04*.

[28] Having considered that all the claimed elements are essential, it is necessary to determine whether these elements form a single actual invention that either has physical existence or manifests a discernible physical effect or change.

[29] *PN2020-04* reads:

> If a computer is merely used in a well-known manner, the use of the computer will not be sufficient to render the disembodied idea, scientific principle or abstract theorem patentable subject-matter and outside the prohibition under subsection 27(8) of the *Patent Act*.
>
> In the case of a claim to a computer programmed to run a mathematical algorithm, if the computer merely processes the algorithm in a well-known manner and the processing of the algorithm on the computer does not solve any problem in the functioning of the computer, the computer and the algorithm do not form part of a single actual invention that solves a problem related to the manual or productive arts. If the algorithm by itself is considered to be the actual invention, the subject-matter defined by the claim is not patentable subject-matter or is prohibited under subsection 27(8) of the *Patent Act*.
>
> On the other hand, if running the algorithm on the computer improves the functioning of the computer, then the computer and the algorithm would together form a single actual invention that solves a problem related to the manual or productive arts and the subject-matter defined by the claim would be patentable subject-matter and not be prohibited under subsection 27(8) of the *Patent Act*.

[30] It is my view that the claimed computer elements and the claimed algorithm for calculating user competency measures form a single actual invention, which is directed to patentable subject-matter for the following reasons.

[31] The computer as claimed is not used in a well-known manner. The steps of measuring presentation durations of the subject matter, the query or instructions, and the response mechanism of each question item are determined by the claimed computer device by recording the time intervals between user inputs for advancing through the presentation sequence. The resulted measurements are fed into the algorithm to compute user competency measures. In my view, these steps of measuring time intervals using the computer device are not generic computer input or output of information with only intellectual meaning. The time intervals, as input of the algorithm, are results of actual physical time measurements. These steps require the computerized electronic learning system to automatically react to user inputs and perform related time measurements. In this case, the computerized steps are not merely performing well-established generic calculations and data processing tasks. Instead, the computer device as claimed automatically measures presentation durations of question item sections based on user inputs for advancing through the presentation sequence.

[32] Further, the Applicant argued in R-FA (page 3) that the measurement of display durations of different sections of question items "permits the electronic learning system to be operated in a way that cannot be done using the total elapsed time approach" used by known systems. I agree. Since the algorithm as claimed utilizes the computer device to

perform time measurements on each section of a question item as opposed to measuring only the total time elapsed for each question item, the electronic learning system utilizes the time measurement values provided by the computer device to achieve improved flexibility in competency calculations due to more granularity in time measurements. Therefore, it is my view that the computer device used in the claimed electronic learning system is not merely a computer being used in a well-known manner to run a mathematical algorithm or otherwise implement an abstract idea, and that the claimed computer device and algorithm form a single actual invention. This single invention, including the steps of measuring presentation durations of question item sections as inputs of the algorithm, is directed to "something with physical existence, or something that manifests a discernible effect of change" (*Canada (AG) v Amazon.com*, 2011 FCA 328, at paragraph 66). Hence the claimed subject-matter is physical, solves a problem related to the manual or productive arts, and is not prohibited under subsection 27(8) of the *Patent Act*.

[33] Therefore, it is my view that claim 1 on file defines patentable subject-matter. As independent claims 18, 19, and 33 recite the same feature of measuring presentation durations as claim 1, they also define patentable subject-matter by virtue of the same arguments for claim 1. Dependent claims 2 to 17, 20 to 32, and 34 to 38 also define patentable subject-matter based on their dependency on the independent claims.

Conclusion

[34] I am of the view that claims 1 to 38 on file define patentable subject-matter and comply with both subsection 27(8) and section 2 of the *Patent Act*.

RECOMMENDATION OF THE BOARD

[35] In view of the above, I am of the view that the rejection is not justified on the basis of the defect indicated in the Final Action notice and I have reasonable grounds to believe that the instant application complies with the *Patent Act* and the *Patent Rules*. I recommend that the Applicant be notified in accordance with subsection 86(10) of the *Patent Rules* that the rejection of the instant application is withdrawn and that the instant application has been found allowable.

Liang Ji

Member

DECISION OF THE COMMISSIONER

[36] I concur with the findings of the Board and its recommendation that the application should be allowed because claims 1 to 38 on file define patentable subject-matter and thus comply with subsection 27(8) and section 2 of the *Patent Act*.

[37] Therefore, in accordance with subsection 86(10) of the *Patent Rules*, I hereby notify the Applicant that the rejection of the application is withdrawn, the application has been found allowable and I will direct my officials to issue a Notice of Allowance in due course.

Virginie Ethier

Assistant Commissioner and Director General

Dated at Gatineau, Quebec,

This 4th day of May 2021