

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

BETTER EDUCATION, INC.	§	
	§	
vs.	§	CASE NO. 2:08-CV-446-CE
	§	
EINSTRUCTION CORPORATION, ET AL.	§	

MEMORANDUM OPINION AND ORDER

After considering the submissions and the arguments of counsel, the court issues the following order concerning the claim construction issues and the defendants eInstruction Corporation’s (“eInstruction”) and Qwisdom, Inc.’s (“Qwisdom”) motion for summary judgment of invalidity for indefiniteness (Dkt. No. 107):

I. Introduction

The plaintiff Better Education, Inc. (“Better Education”) contends that the defendants eInstruction and Qwisdom infringe various claims of United States Patent No. 5,002,491 (“the ‘491 patent”). The ‘491 patent is entitled “Electronic Classroom System Enabling Interactive Self-Paced Learning.” The patent was filed on April 28, 1989 and issued on March 26, 1991.

This opinion resolves the parties’ claim construction disputes. The parties are familiar with the legal principles of claim construction; therefore, the court will briefly discuss the technology at issue by reference to the Abstract and independent claim. Then the court will proceed directly to the claim construction issues.

II. Background of the Technology

The Abstract contains the following description of the invention:

An interactive electronic classroom system for enabling teachers to teach students concepts and to receive immediate feedback regarding how well the students have

learned the concepts. Structure is provided for enabling students to proceed in lockstep or at their own pace through exercises and quizzes, responding electronically to questions asked, the teacher being able to receive the responses, and to interpret a readout, in histogram or other graphic display form, of student responses.

The '491 patent contains one independent claim and 48 dependent claims. Claim 1, the sole independent claim, reads:

An interactive electronic classroom system, comprising:

a central computer, including a central processor, a monitor, and associated peripheral hardware, for running individual classroom programs, including programs which accept sequences of input associated with student tasks to which students provide responses, said central computer storing said programs and said responses and providing analyses of said responses, under control of the teacher, via said programs for display on said monitor;

a plurality of student terminals, each including a microprocessor, input means for inputting information, and a display, for receiving said student tasks from said central computer, for executing said student tasks by students to provide said responses, for transmitting said responses to said central computer, and for providing feedback to the students;

network means for transmitting data between said central computer and said plurality of student terminals, said data including said student tasks and said responses;

a communication protocol, associated with said central computer, said network means, and said plurality of student terminals, for transmitting said data between said central computer and said plurality of student terminals, for downloading of ones of said student tasks from said central computer to said plurality of student terminals, and for transmitting said responses from said plurality of student terminals to said central computer;

activation means, associated with said central computer, said plurality of student terminals, said network means, said communication protocol, and said individual classroom programs, for allowing the teacher to initiate and terminate said student tasks on said interactive electronic classroom system, such that each of said plurality of student terminals provides said responses to said student tasks at a pace that is under the control of the teacher, with said responses being transmitted to and monitored by said central computer;

viewing and analyzing means for viewing and analyzing said responses; and

electronic display means for displaying information, by the teacher to the students.

The dependent claims include additional features and limitations.

III. Agreed Constructions

The parties have stipulated to the construction of the following term:

“input means for inputting information”: the recited function is “inputting information” and the corresponding structure is “numeric keys, function keys, keypads, keyboard, and all equivalents thereof.”

IV. Disputed Claim Terms

A. “student task”

The term “student task” is used throughout independent claim 1. To illustrate, some of the limitations of claim 1 are “a central computer . . . for running individual classroom programs . . . which accept sequences of input associated with *student tasks*,” “a plurality of student terminals . . . for receiving said *student tasks* from said central computer, for executing said *student tasks*.” The plaintiff’s proposed construction is “information representative of instructional activities.” The defendants’ proposed construction is “instructional activities.”

The ‘491 patent’s Summary of the Invention describes “student tasks” as “one or a combination of questions, quizzes, tests, . . . , and other *instructional activities*.” (‘491 patent, 4:43-47) (emphasis added). But elsewhere in the specification, according to the plaintiff, the patent explains that a “student task’ is “[i]nformation representative of the highlighted question (or program or other instructional activity) [that] is sent in its appropriate respective form to student terminals” (‘491 patent, 17:14-17) (emphasis added). The defendants argue that the preceding passage is not related to student tasks. The defendants point out that claim 1 includes an “activation

means” which allows “the teacher to initiate and terminate said student tasks.” According to the defendants, this claim language supports their proposed construction, i.e., teachers “initiate and terminate said *instructional activities*.” In contrast, the defendants assert that this claim does not make sense using Better Education’s construction, i.e., “initiate and terminate said *information representative of instructional activities*.”

Based primarily upon the “initiate and terminate” limitation of claim 1, the court is persuaded that the defendants’ proposed construction is correct. Therefore, the court construes “student tasks” to mean “instructional activities.”

B. “executing said student tasks”

Claim 1 describes “a plurality of student terminals . . . for receiving said student tasks from said central computer, for *executing said student tasks* by students to provide said responses, for transmitting said responses to said central computer, and for providing feedback to the students.” (emphasis added). Better Education contends that this term means “performing student tasks.” On the other hand, eInstruction and Qwisdom assert that the proper construction is “enabling the students to access and perform downloaded student tasks and to enter responses.”

According to the plaintiff, the specification supports its proposed construction: “It also is an object of the invention to provide classroom facilities for students to perform computer based instructional exercises” (‘491 patent, 3:17-19). The defendants argue that the execution of student tasks must occur at the student terminals; this is correct, but this term’s construction does not need to reflect the location of execution, as the claim language already states, “a plurality of student terminals . . . for executing said student tasks.” The defendants also contend that the student, and not the student terminal, is the entity that actually executes the student tasks. Again, the

defendants' position is supported by the claim language, "executing said student tasks *by students*." As the claim limitation clearly demonstrates that the students perform the task, there is no need to import this requirement into the claim construction. Finally, "said student tasks" refers back to "student tasks," which has already been construed. As such, the court construes "executing said student tasks" to mean "performing student tasks."

C. "each of said plurality of student terminals . . . at a pace controlled by teacher" (Pacing)

Claim 1 also requires, in part, "allowing the teacher to initiate and terminate said student tasks on said interactive electronic classroom system, such that *each of said plurality of student terminals provides said responses to said student tasks at a pace that is under the control of the teacher*." (emphasis added). Better Education's proposed construction is "the teacher may set a time limit or control the pace by starting, stopping, or advancing to the next instructional activity, question, or set of questions which the students may provide responses to on their student terminals." The defendants assert that this term means "the teacher has the ability to set separate time limits for when different student terminals send responses to the student tasks." The primary dispute is whether the system must be capable of setting different time limits for individual students.

The defendants first argue that the system must permit separate time limits because the claim language states that "*each of said plurality . . . is under the control of the teacher*." (emphasis added). According to the defendants, Better Education's proposed construction reads "each of" out of the claim language by not requiring individual control. But, even with a system having a single aggregate timer, each individual student terminal provides responses; thus, the "each of" language is not rendered superfluous. Next, the defendants cite to a portion of the Summary of the Invention,

which states:

The inventive system also involves a combination of software and hardware to accomplish the following: . . . a timing environment . . . for allowing each of the terminals to proceed . . . either at each student's own pace, or in lockstep with all other students in the class. If the teacher assigns different tasks to different groups of students in the class, then students within each group may proceed either individually or in lockstep with others in that group

(‘491 patent, 4:26-27, 39-52). Thus, according to the defendants, the claimed system must permit individual timers. In response, Better Education argues that the language of the dependent claims supports its asserted construction. Claim 28, which depends upon claim 1, “allows each of said plurality of student terminals to receive and respond to said student tasks at each student’s own pace.” The Federal Circuit has explained that “the presence of a dependent claim that adds a particular limitation raises a presumption that the limitation in question is not found in the independent claim.” *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004). As claim 28’s pacing limitation is nearly identical to the defendants’ proposed construction of claim 1, the doctrine of claim differentiation counsels against the construction asserted by the defendants. The court is not persuaded that the specification requires the narrow reading of this limitation that is advanced by the defendants. Therefore, the court construes “each of said plurality of student terminals provides said responses to said student tasks at a pace that is under the control of the teacher” to mean “the teacher may set a time limit or control the pace by starting, stopping, or advancing to the next instructional activity, question, or set of questions which the students may provide responses to on their student terminals.”

D. “activation means”

The term “activation means” is found in claim 1:

activation means . . . for allowing the teacher to initiate and terminate said student tasks on said interactive electronic classroom system, such that each of said plurality of student terminals provides said responses to said student tasks at a pace that is under the control of the teacher, with said responses being transmitted to and monitored by said central computer

(emphasis added). Both parties agree that this is a means-plus-function claim term and therefore should be governed by 35 U.S.C. § 112, ¶ 6. The parties also agree upon this term's function:

Allowing the teacher to initiate and terminate said student tasks on said interactive electronic classroom system, such that each of said plurality of student terminals provides said responses to said student tasks at a pace that is under the control of the teacher, with said responses being transmitted to and monitored by said central computer.

The plaintiff and the defendants disagree about the corresponding structure of “activation means.” According to Better Education, the corresponding structure is “a computer running software that performs the operations described at 2:25-30, 2:45-48, 4:39-55, 10:23-42, 11:61-67, 12:55-14:35, 15:50-66, 17:28-41, Figs. 2A, 3A, 3B, 4S, 4T, 4U, 4V, 4W, 4X, and 4Y.” On the other hand, eInstruction and Qwisdom contend that “activation means” lacks corresponding structure and is thus indefinite.

For computer-implemented means-plus-function limitations, the corresponding structure in the specification is the algorithm that performs the claimed function. *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999). The Federal Circuit has explained that “a means-plus-function claim element for which the only disclosed structure is a general purpose computer is invalid if the specification fails to disclose an algorithm for performing the claimed function.” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1367 (Fed. Cir. 2008). The specification must disclose enough detail about the algorithm, such as a formula, prose, or a flow

chart, to provide the structure required by § 112, ¶ 6. *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008). But the patentee does not have to provide source code or “a highly detailed description of the algorithm.” *Aristocrat Techs. Austl. Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1338 (Fed. Cir. 2008).

According to the defendants, the specification fails to disclose an algorithm corresponding to the “activation means.” eInstruction and Qwisdom contend that the alleged algorithms in the specification merely recite the desired function or result, not the steps necessary to do so. Figures 2A and 2B, however, provide flowcharts that correspond to the claimed functions. The first step in the activation means function is “allowing the teacher to initiate and terminate said student tasks.” Figure 2A demonstrates initiating student tasks by asking a question, assigning an exercise, etc. Likewise, the figure explains how student tasks are terminated by setting a time limit or manually ending the lesson. Figure 2B is another flowchart that illustrates how the student terminals provide responses to student tasks. The figure shows that the students log in and select a quiz, individual question, or didactic program or other activity. Then the students answer the questions or run the program, and the results are transmitted to the teacher for review and monitoring. For the transmitting and monitoring responses function, Figure 2B illustrates transmission and Figure 2A describes monitoring. Transmission from the student terminals and monitoring by the central computer is discussed throughout the specification, and in particular column 8, line 54 through column 9, line 9. In all, the court is not persuaded that “activation means” lacks corresponding structure. Therefore, the court adopts the parties’ agreed function for “activation means.” The corresponding structure for this term is a general purpose computer programmed to perform the steps illustrated in the flowcharts of Figures 2A and 2B and their equivalents. Specifically, the initiate

function corresponds to the “Ask a Question?” and “Give a quiz?” steps in Fig. 2A; the terminate function corresponds to the “Set a time limit for answering” and “Set time limit” steps in Fig. 2A; the provide responses and transmit functions correspond to the “Receive and interpret questions,” “Transmit answers and/or grade,” and “Transmit answers and/or receive feedback” steps in Fig. 2B; and the monitor function corresponds to the “View, analyse [sic], screen, and/or display student responses” and “View & analyse [sic] responses” steps in Fig. 2A.¹

E. “analyzing means”

Claim 1 states in part, “viewing and *analyzing means* for viewing and analyzing said responses.” (emphasis added). Both parties agree that “analyzing means” is a means-plus-function term, and its function is “analyzing student responses.” Better Education asserts that the corresponding structure is the algorithm that “generat[es] a histogram that shows the percentage of correct and incorrect responses.” The defendants argue that the specification discloses no algorithm associated with analyzing means.

Figure 3B shows the analytical steps that the teacher can perform: monitor incoming student responses, select alternate view of responses, view percentage of stations having responded, and preview/view histogram of student responses. Other figures contain exemplary screenshots of these analytical views. At column 17, line 44 through column 18, line 9, the specification discusses the types of graphical analysis available to the teacher. The specification discloses an analysis algorithm that provides sufficient corresponding structure for this claim limitation. Thus, the function of this term is “analyzing student responses.” The corresponding structure is a general

¹ Per § 112, ¶ 6, the corresponding structure also includes equivalent structures.

purpose computer programmed to perform the steps illustrated in the flowchart of Figure 3B and their equivalents. Specifically, the analyze function corresponds to “monitor incoming student responses (Fig. 4Y),” “View % of Stations Having Responded (Fig. 4DD),” and “Preview / View Histogram of Stud. Responses (Fig. 4EE)” (as well as the histograms shown in Figs. 5A and 5B).²

F. “electronic display means” / “electronic display”

The final limitation of claim 1 reads, “electronic display means for displaying information, by the teacher to the students.” The defendants contend that “electronic display means” is a means plus function term; the term’s function is “displaying information by the teacher to the students” and its corresponding structure is “a liquid crystal display (LCD), a video projector, a student terminal display, a television, a television projector, a monochrome display, and their equivalents.” In contrast, the plaintiff argues that “electronic display” should be construed, and this term is not a means plus function term. Because this term is commonly understood, Better Education believes that “electronic display” requires no construction.

When the word “means” is used in a claim term, there is a presumption that § 112, ¶ 6 applies. *Personalized Media Commc’ns, LLC v. Int’l Trade Comm’n*, 161 F.3d 696, 703 (Fed. Cir. 1998). This presumption may be overcome if the claim provides sufficient structure to perform the recited function. *TriMed, Inc. v. Stryker Corp.*, 514 F.3d 1256, 1259 (Fed. Cir. 2008). “Sufficient structure exists when *the claim language specifies the exact structure* that performs the functions in question without need to resort to other portions of the specification or extrinsic evidence for an adequate understanding of the structure.” *Id.* at 1259-60 (emphasis added). Here, the court is not

² The corresponding structure also includes equivalent structures. § 112, ¶ 6.

convinced that the claim language in question provides the “exact structure” of electronic display means. As the plaintiff has not overcome the § 112, ¶ 6 presumption, the court will treat electronic display means as a means plus function limitation. This term’s function is “displaying information, by the teacher to the students” and the corresponding structure is “a liquid crystal display (LCD), a video projector, a student terminal display, a television, a television projector, a monochrome display, and their equivalents.”

V. Conclusion

For the reasons stated above, the defendants’ motion for summary judgment of invalidity due to indefiniteness is denied. The court adopts the constructions set forth in this opinion for the disputed terms of the ‘491 patent. The parties are ordered that they may not refer, directly or indirectly, to each other’s claim construction positions in the presence of the jury. Likewise, the parties are ordered to refrain from mentioning any portion of this opinion, other than the actual definitions adopted by the court, in the presence of the jury. Any reference to claim construction proceedings is limited to informing the jury of the definitions adopted by the court.

SIGNED this 27th day of April, 2010.


CHARLES EVERINGHAM IV
UNITED STATES MAGISTRATE JUDGE

