Evaluating If-Then Statements

Using Truth Tables

"If the student hasn't learned, then the teacher hasn't taught."

Hypothesis	p: if the student hasn't learned
Conclusion	q: then the teacher hasn't taught
Symbolically	$p \rightarrow q$
In Words	"if p, then q"

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"If the student hasn't learned, then the teacher hasn't taught" is True when:

p	q	$p \rightarrow q$
True	True	True
True	False	False
False	True	True
False	False	True

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p	q	$p \rightarrow q$
if the student hasn't learned	then the teacher hasn't taught	False
if the student hasn't learned	then the teacher has taught	True
if the student has learned	then the teacher hasn't taught	True
if the student has learned	then the teacher has taught	False

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$p \rightarrow q$	Rationale
False	Students may not learn for reasons other than that the teacher has not taught.
True	Students may not learn though a teacher has taught.
True	Students can learn if a teacher has not taught.
False	Students may not learn if a teacher has taught.

The statement : "If the student hasn't learned, then the teacher hasn't taught" is FALSE