

Business Students and Their Hypotheses on Teaching Effectiveness

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Abstract

It is undisputed that teaching business requires profound knowledge of the subject and preferably also work experience in some fields of business. Whether pedagogical education, particularly knowledge of findings of empirical educational research, is also needed to become an effective business teacher is often heatedly debated. The main objective of this paper addresses the question of whether business students can safely depend on their experience and/or intuition when answering pedagogical questions. It examines whether they are able to “predict” or “anticipate” the results of hypothesis testing in the pedagogically relevant fields of educational quality by simply referring to their past experiences and their observations in everyday life. The results show that it is not reliable to depend solely on intuition and experience when pedagogical questions need to be answered. Between 11,9% and 85,1% of the respondents went against research with their beliefs. Results of hypothesis testing are obviously not self-evident and people – particularly those who want to teach – need to be very careful when relying on their experience, beliefs, and intuition. Therefore, it is indispensable that business teachers are not only experts in business but also have a profound knowledge of what constitutes effective teaching.

Problem Statement and Objective

It is undisputed that teachers need to have a profound knowledge of the subject they are teaching. Therefore, business teachers should not only be knowledgeable of the subjects business administration and economics, but also would it be desirable and enriching for their teaching if they also had gained work experience in some fields of business. Whether pedagogical education, particularly knowledge of findings of empirical educational research, is also needed to become an effective business teacher is often heatedly debated. Discussions on how students should be taught in order to support their learning achievement in the very best way (which mostly is the definition of “effective teaching”) often reveal that many people trust that they know what constitutes and influences effective teaching, even without knowledge of the findings of educational research. After all, they argue, they went to school themselves for many years and have their own first-hand experiences. They may even consider that some results of hypothesis testing in the field of pedagogy are self-evident and, consequently, that this type of research is a waste of money and time. If these people were right, they would be able to indicate whether a hypothesis has been corroborated or not without prior knowledge of relevant empirical research findings. The study described in this paper explores this assumption.

The main objective of this paper addresses the question of whether business students can safely depend on their experience and/or intuition (“common sense”) when answering pedagogical questions. It examines whether they are able to “predict” or “anticipate” the

results of hypothesis testing in the pedagogically relevant fields of teaching behaviour and teaching styles, conditions for teaching, and educational quality by simply referring to their past experiences and their observations in everyday life.

Method

A respondent sample of 255 business students of four universities in Austria, Germany and Sweden were asked to indicate if they thought that the statements in a questionnaire were actual results of hypotheses tests. Additionally, the respondents were asked to explain their reasoning. The eight statements (see table 1) cover different aspects of effective teaching that have been thoroughly researched with extensively consistent findings. These include: the relationship between class size and student learning achievement and its effect on emotional and motivational variables; the influence of the variation of teaching methods on student achievement; and whether one teaching method can be found to be consistently more effective than another [1].

Table 1: Statements in the questionnaire

Item No.	Statements
Statement 1	Findings of empirical educational research show that students generally learn more effectively (in terms of knowledge acquisition) by learning independently than by being instructed by a teacher.
Statement 2	Findings of empirical educational research show that students learn statistically significantly more in smaller classes (of 18-20 students) than in large classes (of 25-30 students).
Statement 3	Findings of empirical educational research show that teachers and students feel better in smaller classes (of 18-20 students) than in large classes (of 25-30 students)
Statement 4	Findings of empirical educational research show that the more teaching methods are employed, the higher the students' learning achievement (in terms of knowledge acquisition) will be.
Statement 5	Findings of empirical educational research show that the teaching style is more important to the students' learning achievement than the teacher's knowledge of the subject because subject matter can also be found in textbooks and on the internet.
Statement 6	Findings of empirical educational research show that student ratings of teachers are not only significantly influenced by instructional quality but also by the extent to which students (dis)like their teacher.
Statement 7	Findings of empirical educational research show that teachers make no difference for student learning because student achievement mainly depends on cognitive abilities, prior knowledge, interests, motivation and the support students get at home.
Statement 8	Findings of empirical educational research show that innovative teaching methods generally cause higher learning achievement (knowledge acquisition) than conventional teaching methods.

These statements refer to the following four main fields of instructional quality: (1) teaching methods and their contribution to learning achievement [Statements 1, 4 and 8]; (2) class size [Statements 2 and 3]; (3) competencies of teachers [Statements 5 and 7]; and (4) teacher evaluation [Statement 6]. These issues are very often heatedly debated and discussed and encourage many to express their subjective theories [2]. Of course, there are other relevant educational issues that could also have been addressed and that may become the subject of future research.

Results

Statement 1: individual learning and knowledge acquisition

“Findings of empirical educational research show that students generally learn more effectively (in terms of knowledge acquisition) by learning independently than by being instructed by a teacher.” True or false?

Table 2: Results for statement 1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	True	173	67.6	67.8	67.8
	False	82	32.0	32.2	100.0
	Total	255	99.6	100.0	
Missing	System	1	0.4		
Total		256	100.0		

This statement is untrue according to findings because it argues that individual learning is generally more effective than being taught by a teacher. First, there are a number of qualifications that must be fulfilled to allow for effective individual learning. These include sufficient prior knowledge of the students, motivation, and appropriate learning strategies and techniques. Some students do not meet these requirements and learn more effectively when being taught by a (good) teacher [3]. Secondly, there is no teaching method that is consistently more effective than another, regardless of which learning objectives are to be achieved, the number of students that must achieve these objectives, the available time and other learning conditions, and many other variables influencing the teaching and learning process [3]. Learning outcomes are dependent on the quality of the method, the way the method is employed, prior knowledge and cognitive abilities, how experienced, interested, and motivated teachers and students are and on many other factors. Weinert und Helmke [3] find that “an old piece of educational wisdom is that no single method of instruction is the best for all students and for all learning goals, and that even very effective instructional procedures can have deficits with respect to single criteria” [p. 136].

Nevertheless, more than two thirds of the respondents think that statement 1 is true (see Table 2). The explanations they give for their decision sound very plausible. They think that individual learning gives students enough time to relate new subject matter to what they already know about the subject. The respondents consider it a more active way to learn and, therefore, more stimulating and interesting for students who have to be very attentive and focused. All these conditions are of course conducive to high learning achievement. This may hold true for some students but, most certainly, not for all and not for each and every learning task as is suggested in statement 1. Helmke [4] has already mentioned that a kind of “method myth” might exist which considers innovative teaching methods to be generally more effective than conventional methods. It was seen that among business students, this myth obviously is a widespread belief.

Statement 2: class size and learning achievement

“Findings of empirical educational research show that students learn statistically significantly more in smaller classes (of 18-20 students) than in large classes (of 25-30 students).” True or false?

Table 3: Results for statement 2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	True	217	84.8	85.1	85.1
	False	38	14.8	14.9	100.0
	Total	255	99.6	100.0	
Missing	System	1	0.4		
Total		256	100.0		

More than 80% of the respondents think this statement is true (see Table 3). They explain that small class size enables teachers to support their students better and to involve them more intensely in the teaching process. They asserted that teachers can ask more questions, give more detailed explanations to the students’ questions, and take (cognitive and affective) differences between students more into consideration. Finally, they argue that fewer students make less noise, and this facilitates teaching and fosters the students’ attentiveness.

However, statement 2 is also false, according to studies. Research on class size and its effect on learning achievement has mostly shown that students may learn more in smaller classes, but the difference to larger classes is not (statistically) significant. The effect becomes significant only when comparing “normal” class size to very small classes of less than 15 students. Wilberg&Rost [5] carried out a study on the effect of class size in 665 classes at the secondary level in 15 (mainly) European countries, and they found no consistent relationship between class size and learning achievement. There were only non-systematic effects. Hence, they conclude that there is no general correlation between a smaller class size and higher learning achievement. The heterogeneity of the correlations found in different studies indicates instead that there might be another variable accounting for differences in learning achievement. Teaching behaviour might be such a variable: smaller class size only contributes to a higher learning outcome if the teacher is able to adapt to different teaching conditions and use didactic possibilities which are more appropriate to smaller classes. Put differently, if the teacher teaches small classes the same way s/he teaches larger classes, why should there be a difference in learning achievement?

Statement 3: class size and well-being

“Findings of empirical educational research show that teachers and students feel better in smaller classes (of 18-20 students) than in large classes (of 25-30 students).” True or false? Again, more than 80% of the respondents deemed this statement to be true (see Table 4) – and it is. The respondents’ explanations for their reasoning are very similar to those for statement 2. Actually, research shows that teachers and students feel better in smaller classes. Smaller class size has a considerable effect on teachers’ well-being in class and also a (comparatively smaller) effect on students’ well-being [6, 7].

Table 4: Results for statement 3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	True	217	84.8	85.1	85.1
	False	38	14.8	14.9	100.0
	Total	255	99.6	100.0	
Missing	System	1	.4		
Total		256	100.0		

Statement 4: teaching methods and learning achievement

“Findings of empirical educational research show that the more teaching methods are employed, the higher the students’ learning achievement (in terms of knowledge acquisition) will be.” True or false?

Table 5: Results for statement 4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	True	163	63.7	64.7	64.7
	False	89	34.8	35.3	100.0
	Total	252	98.4	100.0	
Missing	System	4	1.6		
Total		256	100.0		

Almost two thirds of the respondents think that this statement is true (see Table 5) because a variety of teaching methods would make the lessons more interesting and would support the students’ attentiveness and motivation. Different teaching methods could well appeal to a greater diversity of learning styles and, therefore, reach more students than a single method. These explanations are basically very reasonable, and, in fact, methods have different strengths and weaknesses which can only be counterbalanced by using a variety of methods.

Nonetheless, statement 4 is false because it implies a linear relationship (a correlation) between the number of methods and the level of achievement, another “method myth” stated by Helmke [4]. If statement 4 were true, four methods would be more effective than two or three, and eight methods would be more effective than five, for example. There is no empirical evidence for such a linear relationship. Helmke [4, 8] found in his MARKUS-study that the teachers who employed the highest number of teaching methods did not achieve the highest learning outcomes as measured by student achievement [8]. The most successful teachers were those who employed two different teaching methods in addition to “conventional” teaching, followed by those teachers who used three additional methods and by those who employed only one additional teaching method.

Statement 5: the importance of the teacher’s knowledge of the subject

“Findings of empirical educational research show that the teaching style is more important to the students’ learning achievement than the teacher’s knowledge of the subject because subject matter can also be found in textbooks and on the internet. True or false?”

Table 6: Results for statement 5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	True	117	45.7	46.1	46.1
	False	137	53.5	53.9	100.0
	Total	254	99.2	100.0	
Missing	System	2	0.8		
Total		256	100.0		

Almost one out of two respondents thinks that this statement is true (see Table 6), but it is definitely not. In fact, the teacher's knowledge of the subject is an indispensable prerequisite to her/his didactic skills and his/her ability to teach the subject effectively. Only by knowing a subject very well can a teacher explore what is important or what is difficult to understand or decide which examples can be given to illustrate a matter [9]. There is no didactic competence without a profound and thorough understanding of the subject matter. A teacher, therefore, needs to be an expert on the subject s/he is supposed to teach [10].

These arguments are also used by about half of the respondents who – correctly – think that the above statement is false. Considerable empirical evidence exists for these arguments [11]. The teachers' knowledge of the subject helps them to stress important aspects and interrelations, it improves the teachers' explanations and their ability to cope with and react to the students' questions and their contributions, and it enables them to prepare more challenging questions and more demanding assignments for their students [12].

Statement 6: student ratings of teachers

“Findings of empirical educational research show that student ratings of teachers are not only significantly influenced by instructional quality but also by the extent to which students (dis)like their teacher.” True or false?

Table 7: Results for statement 6

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	True	205	80.1	80.1	80.1
	False	51	19.9	19.9	100.0
	Total	256	100.0	100.0	

About 80% of the respondents consider this statement true (see Table 7), and this is correct according to researchers. An empirical study of factors influencing student ratings of accounting teachers at Austrian business colleges has shown that teaching behaviour in class (especially the clarity of the teachers' explanations) which is defined as one major element of instructional quality (as it is perceived by the students) has the strongest impact on student global ratings of their teachers. Still, the students' perceived likeability of the teacher has a statistically significant additional influence on student ratings. Although this effect is considerably smaller than the teaching behaviour, it is the strongest effect of a bias on global ratings that cannot be explained by any other factor in the model [13].

Statement 7: the teacher’s impact on learning

“Findings of empirical educational research show that teachers make no difference for student learning because student achievement mainly depends on cognitive abilities, prior knowledge, interests, motivation, and the support students get at home.” True or false?

Table 8: Results for statement 7

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	True	30	11.7	11.9	11.9
	False	222	86.7	88.1	100.0
	Total	252	98.4	100.0	
Missing	System	4	1.6		
Total		256	100.0		

The vast majority of respondents consider this statement false (see Table 8), and it definitely is. However, almost 12% of the respondents think it could be true that teachers make no difference for student learning. The students’ cognitive abilities, their prior knowledge, interests, motivation, and the support they get at home considerably influence student learning achievement. However, these are factors that cannot be (easily) influenced by school. Of the factors that can be changed and thereby improved, instructional quality – especially teaching behaviour and teaching style – is the most powerful. Teachers make a difference because they motivate students, attract the students’ attention by asking the most interesting questions, and make concepts and skills clear and understandable. Teachers are repeatedly found to account for a large portion of the variance of student achievement [14, 15], while statistically controlling for students’ cognitive and affective variables.

Statement 8: direct instruction and other teaching methods

“Findings of empirical educational research show that innovative teaching methods generally cause higher learning achievement (knowledge acquisition) than conventional teaching methods (like direct instruction).” True or false?

Table 9: Results for statement 8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	True	125	48.8	49.6	49.6
	False	127	49.6	50.4	100.0
	Total	252	98.4	100.0	
Missing	System	4	1.6		
Total		256	100.0		

Almost one out of two respondents considers this statement to be true (see Table 9). They argue that innovative teaching methods (open learning, project-based learning, cooperative learning, etc.) are more motivating and engaging for students. Additionally, the students learn how to work independently and in groups, how to organise learning, and how to solve problems. This may be true for some students and some learning arrangements but, again, definitely not for all. The statement is, according to studies, false and is another “method myth” [4] as was seen in statement 1.

Conclusion and Discussion

The results show that it is not reliable to depend solely on intuition and experience, or so-called “common sense”, when pedagogical questions need to be answered. The results of scientific research cannot be replaced by experience and personal beliefs. The percentage of business students who went against research with their personal hypotheses on instructional quality ranges from 11% to 85%. In five out of eight cases, more than one third of the respondents made incorrect assumptions, and in three out of eight cases, the percentage exceeded 50%. The arguments that these business students use to explain their reasoning are very similar. Although all sound very plausible, there is, in fact, no empirical evidence to support these beliefs.

These results lead to the conclusion that teachers need to be very careful when relying on their experience, beliefs, and intuition. It is shown impressively that in numerous cases, people’s “common sense” views do not correspond with the actual empirical findings in educational research. This holds true even for those business students who have specialised in business education and are, therefore, perceived to be interested in pedagogical matters and, possibly, be familiar with actual results of educational research. Therefore, it is indispensable that schools and colleges of education and pedagogy teach their students research findings and discuss them thoroughly. This will help future teachers do be better prepared and more critical when they go into the field and work as teachers.

Even if personal experience and intuition enabled people to anticipate research findings, research itself would not be dispensable. Research is not less interesting and valuable simply because our assumptions are confirmed. Because experiences gained in everyday life lead to uncertain subjective theories, systematic examinations are needed to confirm what we expect to find and to help us learn more about the validity and application of theories [16].

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