

Improving Sales Engineering Teaching by using Continuous Grading as Extrinsic Motivation

Prof. Dr.-Ing. Jobst Görne,
University of Applied Science
Beethovenstr. 1
D-73430 Aalen
Germany
Jobst.goerne@hs-aalen.de
+49-7162-26183

Abstract:

In sales engineering teaching the fact transfer and the sales skills development needs to be assured. A teaching method was developed in which students had to prepare each class, using the time in class for discussions only. In order to keep a high level of extrinsic motivation, continuous grading was used, so that students knew their grading after each lesson. Too low grading would lead to repeating the class. Student's feedbacks as well as the final grading results were very positive. The effort needed for the change of teaching style was judged as small.

Introduction

The effort to improve sales teaching needs to take the student's learning motivation into account. A high motivation forces them to concentrate their activities towards a goal (Ormrod 2008). Motivation is used to explain among others the intensity, persistence and quality of the goal-directed behaviour (Maehr & Meyer, 1997). It activates the required energy which is necessary for learning (Csikszentmihalyi & Nakamura, 1989; Maehr, 1984) and increases initiation and persistence.

Motivation increases learning efficiency (Schunk, Meece, Pintrich, 2008) and makes students spend more time on learning, even if they are disturbed (Larson, 2000; Maehr, 1984 and Wigfield, A., Eccles, J., Schiefele, U., Roeser, R., & Davis-Kean, P., 2006).

Two motivation types can be found in literature: extrinsic and intrinsic motivation. Extrinsic motivations are based outside the person: the motivation to be best in class or the motivation not to deceive the parents. Intrinsic motivation is the interest to understand the subject and to learn all what it is about. Intrinsic and extrinsic motivations are connected and can influence each other (Deci, 1971 and Lepper, Greene, Nisbett 1973). After giving extrinsic motivation (money) to intrinsically motivated persons, the intrinsic motivation was replaced by extrinsic and had a negative effect on the willingness to perform (Deci 1975). Other investigations show that extrinsic motivations can keep the working moral up (Harackiewicz 1979, Ryan 1982, Deci, Ryan 1985). Extrinsic motivation can be internalized and may become intrinsic under certain circumstances, for example if the targets increase the social acceptance of the student.

Deci and Ryan (1985) show that the extrinsic motivations can be given in two ways: by pressure and punishment or as award and support. Pressure or punishment will not be converted into intrinsic motivation, but support and award may well do. Harter (1978) has shown that (learning) tasks have to be judged as "achievable" by the students. Furthermore a positive feedback is establishing an intrinsic motivation (Fisher 1978, Ryan 1982). Negative feedback leads to experiences of own competence reduction and reduces intrinsic motivation.

Teaching B2B sales has received quite some consideration and investigations (Kalliomaa, S., 2015, Kock, H. 2015 et al.). Teaching sales engineering is similar, but still somehow different from B2B sales. Sales engineers have to understand the technical functions of their complex products as well as the commercial implications and combine both to a favourable solution for the customers. This means that not only selling skills need to be developed, but additionally a lot of understanding and knowledge about what the own product means to the customer and how the own products can be adapted to meet the customer's requirements. Sales engineering teaching needs to be much more fact based than B2B sales teaching. Little has been published on sales engineering teaching so far.

Observations on the Classical Method of Sales Engineering Teaching

Although traditional "ex-cathedra" teaching has been largely criticized in the past, Aschersleben (1999) has shown the validity of this method for fact based subjects. As alumni feedback about the sales engineering class (ex-cathedra style) has always been very positive, little reason for change was seen initially. But over the years dissatisfaction of the teacher grew due to the facts:

- Student's attention in class is generally low
- Students ability to use the terminology and to express themselves in English is poor
- The ability to develop solutions for sales engineering problems is limited
- Sales engineering knowledge is mostly built up in the preparation phase just before the final exam, generating a high stress
- It is expected that this learning style activates short term memory only

It seems that, although the sales engineering class is the flagship of the complete course, the intrinsic motivation is quite low.

Improvement Actions on Extrinsic Motivation and Results

Seen the abovementioned low intrinsic motivation it was decided to run a teaching experiment using extrinsic motivation in a first step. The most prominent goal was to increase the student's ability to think, speak and discuss sales engineering matters. Role plays, discussions of prepared cases and other problem based approaches were put aside because the capacity of fact transfer was estimated to be too low.

It was decided to take the knowledge transfer out of the class time. In order to do so, the script was divided into 14 chapters to have one for each week of the semester. The students were asked to come to class having read and understood the chapter of the week. The target of the teaching was shifted from fact transfer to a discussion about the meaning of the facts, their applicability and their importance for different industry types in order to activate the students learning process and to spread it more evenly over the whole semester. Final grading by oral exam was kept same as before.

In order to support the extrinsic learning motivation a continuous grading system was introduced at the same time. Students were graded each week. Two points were given for showing up, 5 points were given for the ability to answer knowledge questions and up to 10 points were given according to their discussion contributions. The result was displayed immediately, showing the day's performance and the overall grading status up to that date. Below a certain level students would not be permitted to participate at the final exam and would have to repeat the class. In showing the grading immediately, students performing below expectations had time to change and show more contribution.

This change was introduced “as teaching experiment semester”. Continuous grading would not have any consequences for them. Still students took it for real and showed different behaviour compared to the past. These are the observations during the experiment:

- Most of the students accepted the challenge and did prepare for each lesson
- It was not tried to cover all facts by questions, discussions concentrated upon the main topics
- What used to be a monologue session before became a discussion class with lots of contributions from students side during the whole semester
- Student’s ability to express themselves was much better than before
- Not all students participated to the same degree, but all were much more attentive than in traditional teaching style
- Direct grading and direct publishing of grading turned out to be difficult. Sometimes students felt unfairly graded
- Preparation time for the teacher to introduce the new concept was reasonable
- Feedback from students revealed a wide welcome towards the new teaching style
- Some adaptations still have to be done (give more literature and links)

Each lesson needed some preparation time from the side of the teacher in order to define the appropriate questions on each subject. This preparation time will go down with increasing experience. Questions were asked and students were appointed to give the answer. This was carried out in order to distribute the contribution more equally over the students – giving too much freedom of speech resulted in a too uneven distribution of speech: easy speakers dominated the class.

Although it was announced that the new teaching modus would not have any influence upon the grading for this class, the big majority of students participated actively in the experiment, prepared the lessons and participated in the discussions. They knew that they had to learn the subject anyway before the final exam and they were not unhappy to be forced to spread the preparation over the complete semester. Teachers speaking time before the experiment was about 90%. During the experiment it came down to less than 30%, enabling the students to be more active and to express themselves to a much wider extent.

Grading showed to be a delicate issue. Students vividly welcomed the continuous grading. In the beginning no clear rules were communicated, which resulted sometimes in the fact that students did not understand why they had obtained the grading. The grading criteria needed to be improved during the experiment and may need further improvements in coming semesters. It is recommended to each teacher who wants to introduce continuous grading to collect experience on grading before applying it.

Further improvements

Apart from improving the literature list as requested by the students, further improvements need to be done. The portfolio of questions asked and of discussion subjects need to be worked out carefully in order to avoid sheer control questions. Focus shall be put on how to use the knowledge and the facts in an industrial context. Continuous grading needs to be improved so students feel fair graded. It is planned to have a discussion with the next semester on grading, maybe the scale will be set differently. Other elements of teaching need to be tested and brought in to cover special aspects of sales engineering teaching.

Furthermore attempts to work on the student’s intrinsic motivation will be introduced. It is hoped that a discussion about the student’s goals in business life will lead to more insight about the importance of the course and may lead to a higher intrinsic motivation. Other psychological paths need to be followed; one will be to evaluate the influence of self-determination as described by Deci and Ryan, 2001.

Overall results

At the end of the semester, the final grading was done in the same way than before: the same set of questions was used under the same circumstances. The results showed to be about 25% better than before and the student's ability to express themselves was much higher. Seen from the lectures standpoint, the experiment showed positive results.

It was not expected that increasing extrinsic motivation would have changed student's behaviour that much. Maybe there is a cross-over effect to intrinsic motivation, coming from the fact that students do not want to show a lack of knowledge in front of the other students during the discussion

Apparently the traditional, knowledge transfer oriented sales lecture in ex-cathedra style could be converted into a discussion based, active learning teaching style. Knowledge transfer was not the focus anymore; knowledge application and discussion skills were added. Although the work load for the students during the semester is higher, they were happy with the changes and accepted the new system as a progress. Continuous grading is crucial, but not easy to set up. Clear criteria need to be communicated to the students in order have the grading accepted. Further improvements have to be introduced in order to meet the specific requirement of sales engineering. Seen from the side of the teacher, the results were much better than expected. The new teaching style will be used and improved in future.

References

- Aschersleben, Karl: Frontalunterricht – klassisch und modern. Eine Einführung. Studentexte für das Lehramt. Neuwied; Kriftel: Luchterhand 1999, S. VII
- Csikszentmihalyi, M. (1996). Creativity: Flow and the psychology of discovery and invention. New York: HarperCollins
- Csikszentmihalyi, M., & Nakamura, J. (1989). The dynamics of intrinsic motivation: A study of adolescents. In R. Ames & C. Ames (Eds.). Research on motivation in education (Vol. 3, pp. 45–71). San Diego, CA: Academic Press
- Deci, E., & Ryan, R. (1985). Intrinsic motivation and self-determination in human behavior. New York: Plenum Press
- Deci, E.L.; Ryan, R. M.; (2000). The “What” and “Why” of Goal Pursuits: Human Needs and the Self- Determination of Behavior. Psychological Inquiry, Vol. 11, No. 4, 227–268
- Deci, E.L. (1971). Effects of externally mediated rewards on intrinsic motivation. Journal of Personality and Social Psychology, 18(1), 105-115
- Deci, E.L.: Intrinsic Motivation. New York 1975
- Fisher, C. D. (1978). The effects of personal control, competence, and extrinsic reward systems on intrinsic motivation. Organizational Behavior and Human Performance, 21, 273-288
- Harackiewicz, J.: The effects of reward contingency and performance feedback on intrinsic motivation. Journal of Personality and Social Psychology 37 (1979), S. 1352-1363
- Harter, S. (1978). Effectance motivation reconsidered: Toward a developmental model. Human Development, 2(1), 34-64

Kallioma, Sami (2015), Business Students' Feedback On Learning With Pbl And Cbl Applications In Sales Management And Professional Selling Courses, GSSI Conference Proceedings 2015

Kock, Heidi (2015), The Importance Of Teaching Sales Skills To Other Audiences: The Case In Information Technology Education, GSSI Conference Proceedings 2015

Kyndt, Eva et al. The Direct and Indirect Effect of Motivation for Learning on Students' Approaches to Learning through the Perceptions of Workload and Task Complexity." Higher Education Research and Development 30.2 (April 2011): 135–150

Larson, R. W. (2000). Toward a psychology of positive youth development. *The American Psychologist*, 55, 170–183

Lepper, M.R., Greene, C. Nisbett, R.E.: Undermining children's intrinsic interest with extrinsic rewards: A test of the "overjustification" hypothesis. *Journal of Personality and Social Psychology* 28 (1973), S. 129-137

Maehr, Martin L.; Meyer, Heather A.; (1997). "Understanding Motivation and Schooling: Where We've Been, Where We Are, and Where We Need to Go." *Educational Psychology Review* 9(4): 371- 409

Maehr, M.L. (1984) Meaning and motivation: Toward a theory of personal investment. In Ames&Ames, *Motivation in education: Student motivation*, Vol.1 (pp 115 – 144) San Diego: Academic Press

Ormrod, Jeanne Ellis: *Essentials of Educational Psychology* (2nd edition)

Ryan, R.M.: Control and information in the intrapersonal sphere: An extension of cognitive evaluation theory. *Journal of Personality and Social Psychology* 43 (1982), S. 450-461

Ryan, R. M. (1982). Control and information in the intrapersonal sphere: An extension of cognitive evaluation theory. *Journal of Personality and Social Psychology*, 43, 450–461

Schunk, D.H., Meece, J.R., Pintrich, P.R.: *Motivation in Education: Theory, Research, and Application*, 3/E. Upper Saddle River Pearson/Merrill Prentice Hall, 2008

Terhart, Ewald: *Lehr-Lern-Methoden. Eine Einführung in Probleme der methodischen Organisation von Lehren und Lernen*. 1989, Z. S. 135

Wigfield, A., Eccles, J., Schiefele, U., Roeser, R., & Davis-Kean, P. (2006). Development of achievement motivation. In W. Damon, & R. M. Lerner (Series Eds.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Social, emotional, and personality development* (Vol. 3, pp. 933–1002). New York: Wiley