Motivating Workers to Maximize Performance

How Extrinsic and Intrinsic Motivation Affect Performance

Anton Lindén
2015

Bachelor of Arts
Psychology

Luleå University of Technology
Department of Business, Administration, Technology and Social Sciences
Motivating Workers to Maximize Performance

How Extrinsic and Intrinsic Motivation Affect Performance

Anton Lindén

Bachelor Thesis
Psychology
Luleå University of Technology
Department of Business Administration, Technology and Social Sciences
Engineering Psychology
Abstract

Extrinsic incentives, often in form of money or other rewards, are frequently used to motivate an individual to do a job or an assignment. Further, it is believed that individuals that are motivated to do the work are going to perform better. The aim of this thesis was to determine how extrinsic incentives, in different situations, affect performance and how management in work settings should shape assignments and incentives to maximize the workers performance. The results show that the use of extrinsic incentives worked well on routine tasks. When the task was internally motivating and/or required creativity the extrinsic incentives did instead worsen the performance. The results also show that challenging goals, where the individual was involved in setting the goals, both increased motivation and performance. These findings suggest that goals that are challenging should maximize the workers performance as long as they are involved in setting the goals, and the goals come with a fair reward.

Keywords: motivation, performance, incentives, self-determination theory, goal setting theory, equity theory
**Introduction**

Extrinsic incentives, often in form of money or other rewards, are frequently used to motivate an individual to perform a job or an assignment. Further, it is believed that individuals that are motivated to do the work are going to perform better. The simple logic behind this assumption is that monetary incentives should lead to better performing workers in an organizational setting, where this type of motivational system is implemented (Bonner & Sprinkle, 2002).

![Conceptual framework for the effects of monetary incentives on effort and task performance](image)

*Figure 1. Conceptual framework for the effects of monetary incentives on effort and task performance (Bonner & Sprinkle, 2002).*

As seen in Figure 1 effort could be broken down into four components. Direction, duration, and intensity could be seen as effort directed to the assignment with focus on immediate results. Strategy development is focused on learning and achieving better results over time.

Direction is defined by where the individual puts the effort. The individual may focus attention on making products of the highest possible quality or focus on making as many finished products as possible. This would depend on what type of incentive model is used and how the individuals expect to get the highest rewards.

Duration means the time of cognitive and physical effort put into the assignment. This could be observed in situations, where the individual is working overtime because the reward is valued higher than the effort that are put into the task.

The level of intensity put into the assignment could be observed in the level of cognitive focus. This could be observed when an individual believe that a temporary increase in
cognitive effort may lead to better results, which, in turn, should lead to greater rewards. This often happens when people are under time pressure, such as deadlines.

Monetary incentives could also motivate the individual into learning if it is expected to lead to higher rewards over time. Strategy development involves conscious cognition such as problem solving and planning as opposed to the more automated processes seen in the previous components of effort. Strategy development could be observed, when the automated processes are not enough to reach the rewards that the individual is striving for.

Figure 1 also shows that there are four types of variables affecting the performance. Person variables such as personality and knowledge, task variables such as the complexity of the assignment, environmental variables including the goals that are set up or the monetary reward itself, and the incentive scheme variable looking at what part of the performance that are valued and rewarded. These may change both in how the monetary incentive affects the effort and how the effort affect the performance (Bonner & Sprinkle, 2002).

**Extrinsic and intrinsic motivation**

The motivation of an individual can be intrinsic, extrinsic, or both (Deci, 1972). Homeostasis, which can be seen as a type of intrinsic motivation helps the individual survive. Homeostasis keeps the individual motivated to find food, when energy is low and to find water when dehydrated. Humans have a natural drive to survive as a species as well as a drive to pass on knowledge, which motivates an individual to reproduce (Petri, 1996). In the theory of hierarchical needs Maslow (1987) explained what motivated individuals on a basic level. The theory consists of five stages, where the first stage must be met before the individual strives to reach the step above it. It goes from physiological needs, to safety needs, to belongingness, to esteem needs and, lastly, to self-actualization. These motivators work on an unconscious level and motivates an individual to obtain them through actions. One example of this is sexual behaviour, which could serve both physiological needs and fulfill the individual's belongingness needs.

Other types of intrinsic motivation keep an individual motivated to do something without it leading to fill some need. This type of motivation occurs when there is incongruence between previous experience and new information. This would lead to the individual exploring, manipulating, and showing curiosity trying to make sense of the information and resolving the incongruence (Petri, 1996).

The second type of motivating factor is the extrinsic motivation. In this case it is something external motivating the individual to do something with the expectation to get a reward for doing it (Deci, 1971). According to behaviourist theory (Watson, 1970) conditioning occurs when an individual learns to connect two different stimuli. Rewarding something would help the individual learn to connect the action with the reward, which would motivate the individual to do the same action again. In the same way an individual could be motivated to avoid another action because that action gets punished (Watson, 1970).
Rewarding a behaviour could have a negative effect on the intrinsic motivation. Deci (1971) said:

Money is frequently used as a means of "buying" services which would probably not otherwise be rendered. Perhaps, then, the presence of money as an external reward suggests to the subjects that they "should probably not render this without pay," that is, they should not be so intrinsically motivated to do the activity. This could lead the subjects to a process of cognitive reevaluation of the activity from one which is intrinsically motivated to one which is motivated by the anticipation of money. (p. 107)

When an individual feel as the action is motivated by external rewards, then that individual lose the sense of self-determination. There is however differences between various kinds of rewards, verbal feedback and appreciation do not lower intrinsic motivation because it does not make the individual feel as there is an external force that is determining what to do (Deci, 1971).

While money can be a motivator and increase job satisfaction the connection is not so simple as that more money leading to higher job satisfaction. Intrinsic motivators, such as the job in itself, is more important than money concerning the job satisfaction. Money is not enough to increase an overall satisfaction if the intrinsic motivation is low. If, however, the intrinsic motivation is high, then a satisfying amount of money could increase overall satisfaction (Ewen, Smith, Hulin, & Clark, 1966).

**Cognitive evaluation theory**

In the *cognitive evaluation theory* (CET) (Gagné & Deci, 2005) the effect that extrinsic incentives have on the intrinsic motivation is explained. External factors such as tangible rewards, deadlines, surveillance, and evaluations diminish autonomy and, thus, intrinsic motivation cause the individual to feel as there is someone else controlling the behaviour.

Optimally challenging activities are highly intrinsically motivated. Positive feedback promoted the feeling of competence when people felt responsible for their own success. Negative feedback, which decreased feelings of competence, undermined both intrinsic and extrinsic motivation. When rewards were given without a specific task engagement, or when it was not anticipated, it did not lower the intrinsic motivation.

It have also been shown that rewards dependent on high performance did not lower the intrinsic motivation that much, in comparison to no pay and no feedback, when the interpersonal context was supportive rather than pressuring. When a control group got positive feedback comparable to the rewards the group with performance-contingent rewards got, the rewards did, however, lower the intrinsic motivation in comparison (Gagné & Deci, 2005).
Self-determination theory

Adding the internalization aspect (internalizing what other people think as a part of the sense of self) to CET was the start of the Self-Determination theory (SDT) (Gagné & Deci, 2005). The theory builds on the premise that human beings can be active and engaged, or alternatively, passive and alienated. This is a function of the social conditions in which people live. SDT (Gagné & Deci, 2005) explain that self-motivation and well-being increases when the three psychological needs autonomy, competence, and relatedness are fulfilled. When the needs are not fulfilled the well-being and motivation will decrease instead (Ryan & Deci, 2000).

Central to this is the distinction between autonomous motivation and controlled motivation (Gagné & Deci, 2005). As stated earlier by Deci (1971) extrinsic rewards induce controlled behaviour. SDT see these two types of motivation as different in both the way they work as well as the experience that follows. Behaviours can be more or less controlled and autonomous and they stand in contrast to amotivation (Gagné & Deci, 2005).

![Diagram of the self-determination continuum](image)

*Figure 2.* The self-determination continuum. Amotivation completely lacks in self-determination, the four types of extrinsic motivation have various degrees of self-determination, and intrinsic motivation is fully self-determined. From left to right is the level of autonomy depicted (Gagné & Deci, 2005).

As seen in Figure 2 different behaviours can have various degrees of autonomy. This continuum between autonomous and controlled motivation is an important part of the theory and the key difference between CET and SDT. On the left is amotivation, which completely lacks motivation and self-determination. Externally regulated behaviour, which means that it is controlled by external rewards and the values of these rewards, can be internalized. When this is happening the person takes the values, attitudes, or external regulations as their own making them internally regulated. This would mean that the individual does not need the
external rewards anymore. Internalization refers to the three processes introjection, identification, and integration. As seen in Figure 2 these are varying in the degree of self-determination. Introjection is a regulation that the individual have adapted but not as the individual's own choice. This involves the ego and pressures the individual to do something to feel worthy as a person. Identification refers to the extent of how the behaviour reflects the individual's own goals and values. The fullest type of internalization is the integration of identification to the person itself. The behaviour can be truly autonomous if the person believes that the behaviour is a part of the real self. For example a nurse may feel autonomous if the sense of the self is a very caring person. This integrated regulation is similar to intrinsic motivation, but with the difference that the behaviour is instrumentally important for personal goals while in the case with the intrinsic motivation the task itself is autonomous.

When people feel as the need for competence and relatedness, with respect to a behaviour, is fulfilled this helps to internalize the values. However, the need for autonomy also needs to be fulfilled for identification and integration to occur instead of introjection.

The theory predicts that work environments that promote satisfaction in the three psychological needs should enhance intrinsic motivation and promote the internalization of the extrinsic motivation. This should lead to more persistence in work behaviour and more efficient performance, especially in tasks requiring creativity, conceptual understanding, and cognitive flexibility. It should also lead to job satisfaction, positive attitudes toward work, psychological well-being, and organizational citizenship behaviours which include the type of behaviours that are good for the organization, but not explicitly required in the work contract.

The social contexts that maintain intrinsic motivation and those that promotes integration of the extrinsic motivation are in many ways similar. Free choices and feedback promotes both. The difference between the two is that structures, limits, and contingencies are not needed for intrinsic motivation, while it is necessary for internalization since those are the elements that are internalized. Another difference is that internalization requires support and feedback from significant people around the individual, while intrinsic motivation does not (Gagné & Deci, 2005).

**Equity theory**

Equity theory looks at the ratio between benefits and contributions for both partners in a relationship. People are most satisfied, when the ratio is similar for both partners. The difference between equity and equality is the balance, meaning that it is okay for one part to get more out of the relationship if that person also contributes more.

In a work environment this means that the workers want to be paid fairly. If someone contributes more and exerts more effort, relative to co-workers, then that person expects to earn more money. Both being underpaid and overpaid, relative to the contribution, leads to distress. This should happen both at a conscious and an unconscious level and causes the individual to restore the equity by working less or getting a raise, alternatively evaluating that
equity already exist in the situation (Kassin, Fein & Markus, 2011). The effort is the contribution most susceptible to change, since other contributions such as intelligence, education, and so on is harder to change. In many work places the personnel hired have a higher education, and intellect, than required for the assignments. In these situations it is likely that, because of inequity, the workers will decrease the effort put into the tasks (Adams, 1963).

What a person contributes to a relationship may vary between situations. The contributions are also perceived by the contributor, meaning that the partners may value contributions in different ways. If a contribution is recognized by the contributor, or both partners, it is relevant in the exchange. Problems arise when a contribution is only recognized by the contributor, because the individual will expect a fair return for it. In a work setting the individual may see education, skills, intelligence, experience, and effort as contributions that deserve returns in the exchange (Adams, 1963).

A study by Greenberg and Guion (1988) confirmed the theory with a field experiment. In an insurance company the workers had different offices depending on their status at the workplace. Because of renovation the workers were told that there should be a switch of offices for a while and the workers were randomly assigned to offices of the same status, lower status, or higher status. The results show that those, that for the period, got higher status offices performed higher, while those that got lower status offices performed worse. Those assigned at the same status offices and the control group performed at the same level as before the experiment. After the move back to their old offices the performance level returned to normal.

**Goal Setting Theory**

The core premise of Goal Setting Theory is that goals are immediate, although not the only, cause of an individual's actions. This would further mean that the goal setting should be substantially connected to task performance (Locke & Latham, 1990).

The theory asserts that there is a linear function between the degree of goal difficulty and performance. A meta-analysis showed that the performance was 250% higher of those with the highest goals compared to those with the lowest goals. Harder goals lead to greater effort and persistence as long as the goals are accepted. Following this is that satisfaction is dependent on a higher level of performance than on easy goals. Specific and difficult goals lead to a higher performance than vague, non-quantitative, goals such as the "do your best" goal (Locke & Latham, 1990). In a meta-analysis the results showed that in 51 out of 53 studies, or 96%, the results were significantly higher on performances, when there were specific and hard goals (Locke, Shaw, Saari, Latham & Miller 1981).

Experiments have been done on people from many different countries and with many different professions, ethnicities, and ages. Many experiments have been done in field or simulation settings, which imply that it can be generalized outside a laboratory. Basically, any action that can be measured and controlled can be used as a dependent variable including
quality, reaction time, time spent on task, and correct responses. Group goals had the same effect as individual goals, but group goals in addition to, or instead of, individual goals were necessary when it was a group assignment. Self-set goals, assigned goals, and jointly decided goals have been shown to be equally effective (Locke & Latham 1990) although a study by Erez, Earley, and Hulin (1985) showed that participants, that are asked to set their own goals before they were assigned new goals were less committed to the new goals.

Depending on how interesting the task is there are different effects of different goal settings. The results are inconclusive, but a study showed that an assigned deadline of a task, which can be seen as an assigned goal, lowered the intrinsic motivation (Amabile, DeJong, Lepper, & Lanzetta, 1976). Another study by Mossholder and Campbell (1980) showed that assigned goals lowered the intrinsic motivation on interesting tasks, but increased the intrinsic motivation on boring tasks.

The goal setting theory is not defining any specific goal type as superior to another. It could be argued that proximal goals, and sub-goals, should be better because they should give more feedback on the way. More distant goals could be better because they could more easily be adjusted (Locke & Latham, 1990).

**Extrinsic incentives on more complex tasks**

Simply assuming that a person will perform better at a task if that person is motivated to do it might be wrong. This might work when the assignment is simple and straightforward with fixed steps to follow to succeed. When the task is more complex and there is no right way to do it, e.g. when it requires creativity, the performance is instead worse with highly valued external rewards (Amabile, 1996).

Studies show that the performance may not increase, when using incentive based compensation instead of a flat wage payment and that it may even decrease. The individual can put too much focus on the performance and miss out on coming up with the strategy how to actually best do the task. Incentives may also cause too much focus on the rewards, which inhibits risk taking, innovation, and creativity (Kohn, 1993).

**Research aim**

This thesis aims to investigate the relation between different rewards, motivation, and performance.

**Objectives**

Today it is very common to use extrinsic incentive compensation as an easy way to motivate the employees in the workforce to perform better. Articles and experiments on the subject show, that there are a lot of variables that may affect the effect that incentives have on performance.

Questions to be answered:
• What is the relationship between no pay, flat wage payment, and performance based payment and performance?
• How should management shape assignments and incentives to maximize performance?

Method

Literature research
This thesis is done with a literature review method using available theories and studies on the specific topics of motivation, rewards, and performance. The theories presented are mostly from books found in the library at Lulea University of Technology. These theories are used to analyze experimental studies on the subject of the relation between rewards, motivation, and performance. These studies have been found through the library catalogue system Primo at Lulea University of Technology, and Google Scholar, with the primary key words "motivation", "performance", and "incentives".

Delimitation
The area of motivation, intrinsic incentives, extrinsic incentives, and performance is huge. Major theories on motivation relevant to the subject were used to interpret the data and used to discuss how the results may be useful in organizational settings, when management is trying to motivate the workers.

There are many ways in which an individual can be rewarded. In this thesis those are broken down to two types – the flat wage payment and the incentive based payment, in opposition to the "no pay". The former could be a certain amount of money being paid per hour, or month, worked. The latter is when the payment increases depending on how well the worker is performing. This could be measured in different ways including gross profit or customer satisfaction. These ways of payment were compared in this review to see how different types of motivation affected the performance.

The theories and studies used were chosen to give a broad perspective on the subject. To be included the theories needed to explain some part of motivation or performance, while the studies were aimed to include different situations where something was being performed. Only studies with controlled settings, where incentives could be manipulated as well as some type of performance could be measured were included. The exception to this is one of the studies that investigated what had motivated individuals to work without pay. It was chosen because it showed ecological validity, while the rest had high reliability.

Results

Study 1. The effect of incentive contracts on learning and performance (Sprinkle, 2000)
This study compared the effect of incentive based compensation to flat wage compensation in situations, where the individual had the possibility to get experienced and to learn from
feedback. The study was built upon previous experimental studies that Sprinkle (2000) argued did not have an optimal incentive based contract and/or a significant focus on learning. This made it unclear if the results could be generalized to situations, where both the information given to the individual for belief–revision would help the performance and the compensation contract would motivate the individual to maximize the expected rewards. The incentive based contract used in the study should theoretically have motivated the individuals taking part of the experiment to make a first best effort try, with the information they currently had, and then use feedback to maximize the expected rewards.

The experiment was done on 40 undergraduate business students randomly assigned to two different groups. The first group was given a steady certain amount of points for finishing each of the 60 decision–making periods (which simulated flat wage compensation), while the second group was given more points, when performing better on the task (which simulated a incentive based compensation contract).

The 60 decision–making periods were divided into 12 occasions with five choices after each other. The task was to get to highest amount of profit points possible at different choices. The participants could look at a sheet with different amounts of possible profit at different choices. The number they were trying to find were the same throughout the five continuing choices and they had a chance to see how much profit they got from their last try, a type of feedback that could help them learn until the next choice. When looking at the results from earlier trials they lost points, which were deducted from the final score, so it was costly.

The results showed that the group with the incentive based compensation contract put more time into the assignment than the other group. They also performed better overall, however there were no statistically significant difference in the first 15 trials out of the 60. Even after controlling the amount of time put into the assignment, there was a significant difference in the results.

Study 2. Effects of externally mediated rewards on intrinsic motivation (Deci, 1971)
Deci (1971) performed an experiment in which 24 university students participated with a type of puzzle called the Soma cube. The cubes had different shapes and could be assembled to millions of different combinations. The students were assigned to two groups, one experimental group and one control group. The students that took part in the experiment were doing it for one hour, three days in a row. When they arrived to the experiment they were given seven cubes and on the table in front of them they could find pictures of three different combinations of the puzzle and a few magazines.

The first day the two groups were asked to put together the three combinations shown on the pictures in front of them. The second day they were asked to do the same thing, but with new pictures. This time the experimental group was told that they would get paid for each puzzle they managed to put together. The third day was the same as the first one, meaning they did not get paid, but with new pictures.
During the experiment, when two of the three pieces were assembled, the experiment leader would interrupt and leave to another room to insert some numbers in a computer. The participants were told that they could do whatever they wanted to do during the break. What the experiment leader actually did was to go to the next room and look at the students through a one way window, observing what they would do for eight minutes before he returned. The first day both groups played with the cubes for an average of three to four minutes. The second day the control group acted the same way as on the first day. The paid group gained interest in the cubes and played with them for an average of over five minutes. The last day the control group spent slightly longer time playing with the cubes than before, while the group with the withdrawn reward spent a lot less time with the cubes, even far less than on the first day when the students were not paid either. The experiment leader concluded that the monetary rewards had lowered the intrinsic motivation of the students, since the assignment were once paid for. The students did, thus, evaluate the task as something they did not want to do without getting paid for it.

Study 3. The influence of strength of drive on functional fixedness and perceptual recognition (Glucksberg & Melton, 1962)

An experimental study was performed on 128 male undergraduate students. The objective was to observe the effects of incentives, increasing the drive to do the task, on a task where the participants were affected by functional fixedness. The participants were given a box of thumbtacks, a pocketsize matchbox with matches, and a wax candle. The assignment was to mount the candle to the wall. The solution to the problem was to pin the box the thumbtacks are in to the wall with help from the thumbtacks and put the candle in it. This often required some time to figure out due to "fixedness", which caused the participants to only think of the box as a container for the thumbtacks.

The participants were divided to a control group and an experimental group. The control group were told that they were trying to determine how long it would take to solve the problem, while the experimental group were given a monetary incentive for finishing the task. The top 25% would get five dollars each and the fastest person would get 20 dollars.

When the box was empty, and thus removing the fixedness, the group with incentives finished it in an average of 3.67 minutes, while the control group finished it in an average of 4.99 minutes. When the thumbtacks were in the box the group with the incentives completed it in an average of 11.08 minutes, while the control group finished it in an average of 7.41 minutes.

Study 4. Large stakes and big mistakes (Ariely, Gneezy, Loewenstein & Mazar, 2009)

An experiment was conducted in rural India with 87 participants with a relatively low level of education. The participants had an average of five to six years of education, while around one in four had no formal education at all. About half of the participants reported that they owned a bike, while no participant owned a car. Those taking part of the experiments were randomly placed in three different groups with low, medium, or high incentives. The participants were
told that they would get the reward if they performed well compared to a standard and the high reward was equal to an average monthly pay. The standard was set by tests on students in an American university.

Everyone performed six tasks in the three categories creativity, memory, and motor skills. In other words, the reward for high performance could give the participant money equal to six months’ pay. The results showed no significant difference between the groups with the low and medium incentives except for in one of the six tasks. The group with the high incentives performed worse in every task compared to the low and medium incentive groups. The difference between the low incentive group and the high incentive group was significant at the 0.05 level in three out of the six assignments.

**Study 5. How open source software works: “free” user-to-user assistance (Lakhani & Von Hippel, 2003)**

This study looked at the motivation to the task to deliver free field support to users having difficulties with the software program Apache, a software used in web servers with the function to wait for requests from Internet browsers, locate the resource, and send the response back to the browsers. The program was relatively complicated, which meant that it required field support. Since there was no official support for the program a website had evolved where an Apache user could post questions. Any user could then read and answer these questions, providing answers, or add to the discussion.

There were some very successful "open source" software products that were being developed, distributed, and supported. This meant that the products were made on a voluntary basis by, and for, the users themselves. Motives used to explain this motivation consisted of the users own need for the software, enjoying the work itself, and the enhanced reputation that would come from contributions to the project. The projects had necessary, but mundane, tasks as well, which these motives could not explain.

Questionnaires were delivered to users on the website to gather information on the motives, and thoughts, of the Apache support. Users ranked Apache's technical support as slightly better than the commercial counterparts, e.g. Microsoft. Data collection showed that answers often came quickly and at least 50% were answered within a day. Out of the public questions 39% of the questions did not get a public reply, however, 40% of the respondents in the study, which did not get any public help reported to have gotten help in e-mails from users instead.

The information transaction on the website could be broken down to three subtasks (1) a question must be put on the website, (2) the question have to be matched with someone with the right knowledge and willingness to help and (3) an answer must be provided. In the Apache website the burden of matching the question with the information provider lied upon the provider that had to read questions and reply to them. When looking at the time the information providers spent on the website, 98% was spent on the second step. The providers reported to gain valuable knowledge about their own website by doing this. Out of the time
spent on the website, 2% was used to posting answers and then the providers already knew the answers. The main conclusions were that the users wanted to help other users because they got help themselves, as well as gained valuable knowledge while doing it.

**Study 6. The Performance Effects of an Ability-Based Approach to Goal Assignment (Jeffrey, Schulz, & Webb, 2012)**

Studies of the effect that goal difficulty has on performance have almost exclusively been done with the same goal, and the same reward for attaining it, for everyone. Since the task related ability level can differ significantly between individuals one goal for all will not be optimally challenging and reachable for everyone. This should lead to the expected improvement in performance caused by goal setting not having any effect on those who are too highly, or low, skilled to find the goals challenging, but still reachable. This study examined two approaches to goal setting in a situation, where the task related ability between the most and the least capable individuals were significant. The first approach is the classic one goal for all, while the second assigned goals to the individuals depended on their capability level, with lower goals assigned to the lower ability individuals. What was considered "achievable" was in this case a goal setting where 25–50% of the individuals were expected to reach it, most studies set the goals at the lower end of this range. Ability based goals could be set as unique goals for every individual or different goal levels grouped with the individual depending on past performances.

The experiment was a decoding assignment done by 138 undergraduates. The first two rounds were test runs. The second run was used for the ability based goal setting, but this was not known for those taking part in the tests. The participants were randomly assigned to either the "one goal for all" group, or assigned to the "ability based goal" group, that was divided into three subgroups depending on their performance on the precious test run. After the participants were assigned their goals they were also asked to set a personal goal. When the assigned goals were reached the participants would get a monetary reward. They could then choose to continue, but would not receive any more rewards. The goal setting in all groups were meant to be reachable by 20%. The participants got feedback of how well they had performed between the trials.

After the tests the responses to debriefing questions showed that those in the "ability based goal" groups found the goals more fair and less difficult to achieve, as well as the task more enjoyable, than those in the "one goal for all" group. The lower ability group performed significantly better in the "ability based goal" group, while there were no significant difference between the goal setting groups between the medium and high ability groups. The low ability individuals performed gradually worse in the "one goal for all" group. Previous earnings and personal goals had a significant positive effect on performance.
Discussion

With the industrial revolution came a lot of manual labor and the corporate structures were built with the idea of rewarding wanted behavior to control the workers. This is still true on many workplaces around the world. What have been changed are the environment and the advancements in technology. Amabile (1996), Deci (1971) and Ariely et al., (2009) showed that extrinsic incentives might work on tasks that are straightforward and there is a correct step by step way to solve the problem. On more complex tasks that required creativity, "thinking outside the box" and higher cognitive abilities the performance was lowered when extrinsic rewards were present. Manual labor, like assembling something in a factory, is in many places disappearing. In an advanced society robots and machines can do the manual labor, computers can do the math, and productions are being outsourced to countries that charge less for the work done. What is left is more intellectually challenging tasks that need more planning, innovation, and creativity, which is something that Amabile (1996) showed, may be inhibited by extrinsic incentives. This can also be seen in the study by Glucksberg and Melton (1962) that showed that in an assignment, that required creativity, the experimental group that was paid for their performance came to the solution in an average of 11.08 minutes, while the group without pay did it in an average of 7.41 minutes. When the experiment was done differently, and did not require the same amount of creativity, the effect was the other way around. This points to the incentives inhibiting their creativity. The clear goal and reward motivated those taking part in the experiment and just like Goal setting theory (Locke & Latham, 1990) predicts they put more persistence and energy on the assignment. This time the persistence and focus on the goal seem to backfire resulting in loss in creative thinking, when there is no right step by step way to follow to solve it, just like Amabile (1996) explained. Another example is the study by Ariely et al. (2009), where individuals in rural India had the chance to earn a lot of money competing against a standard in the three categories memory, creativity, and motor skills. The results showed no difference in performance among those that had a chance to earn low and medium amounts of money. In the group where those taking part in the trials had a chance to win money equal to six months' pay the results were worse every time. When focusing too much on the goal, rather than how to reach it, "thinking outside the box" is affected negatively. If a study like this, where those taking part of the trials had far less education than those that were used to set the standard, can be generalized is something that can be discussed further. In a single series of trials, where there is a chance to earn money equal to half a year of income the individuals could experience a lot of pressure and this kind of reward is not so common in "real life" work settings. Either way, it gives an interesting insight in how the high rewards can have a negative effect on performance.

Rewards dependent on high performance, in a supportive environment, gives a higher intrinsic motivation than in a no reward, and no feedback, contexts (Gagné & Deci, 2005). If a supportive environment means the same as positive feedback, this would mean that the effects of the feedback weigh more than the effects of the rewards. Feedback is clearly an
important factor for the individual to feel as their actions has a meaning. Gagné and Deci (2005) also explained how positive feedback made the individual feel more competent if they felt as if they deserved it. At the same time, negative feedback lowered both the intrinsic and the extrinsic motivation. In the study on open source by Lakhani and Von Hippel (2003) those who helped out in the online support forum did not receive any pay. This is interesting because the work itself was not necessarily intrinsically motivating. This behaviour is however readily explained with the Self Determination Theory (Gagné & Deci, 2005). First of all nobody was telling them what to work with and when since going online and helping other people is a completely autonomous behaviour. The positive feedback they received from those they were helping should make them feel better and more competent. Lastly, they could feel relatedness to the other people involved in an open source project like this. The results from questionnaires answered by those helping out showed that most people learned from visiting the website. This could be explained with Equity Theory (Kassin et al. 2011), that explain how people like to have equity in the ratio between the effort they put into something with the outcomes they get out of it. If they feel as they are getting help in the online community, then they could possibly be more apt to help other people. The questionnaires also showed that those answering questions already knew the answers, meaning that they did not have to look up information for the information seekers, which implied that it did not require a lot of effort.

There is no simple and best way to motivate the workers to the best performance possible in every context. It seems like different types of incentives are required in different situations. Barely any job is always creative, there are still routines that has to be followed such as reading mails and filling out papers. In these situations a monetary incentive works just fine and the findings by Mossholder and Campbell (1980) showed that the intrinsic motivation could even be higher on the tasks, that the individual did not find intrinsically motivating if there were goals to be achieved. This is likely depending on the joy of conquering challenges, which makes the individual feel competent. On tasks that are intrinsically motivating from the start the rewards could instead lower the motivation. The experiment by Deci (1971) showed how rewards temporary increased the motivation to play with the Soma cubes. This task is intrinsically motivating from the start because it is challenging and autonomous. When the rewards were presented and later were withdrawn, the motivation dropped to lower than it was before the rewards were introduced. The cognitive evaluation of the task was that it was probably nothing the individual wanted to do for free if someone were willing to pay for it.

People living in society need money to survive. Thus, taking away all salary to increase the intrinsic motivation is obviously not an option. Studies have shown that money is important up to a certain level, where the individual can meet their basic needs and then the effect wears off (Arnold & Randall, 2010). This point to the fact that a salary that gives the worker the possibility to live a good life is enough and the rest could be focused on other aspects of motivation, such as the possibility to decide yourself what to work with. There is however a possibility that according to the internalization aspect of the Self Determination Theory
the individual that makes a lot of money could have a sense of the self as someone that makes a lot of money, and is interested in making money, and therefore it is a part of their self-concept, which would make the behaviour more internally motivated. Making more money could also make the individual feel competent if they feel that they have performed very well.

Implementing SDT (Gagné & Deci, 2005) in organizational settings is because of various reasons very hard. First of all, most of the experiments supporting the theories have been done in a laboratory environment and not in an organizational setting. Secondly, many of the tasks that people are doing in their jobs are not that intrinsically motivating. SDT is not very compatible with the corporate structures of today, since they are built on the rewards and the workers need a salary to survive. The theory seems to be in direct opposition of the theories dominating today. You could either try to increase the intrinsic motivation or use extrinsic incentives, which would directly affect the intrinsic motivation negatively (Deci, 1971).

The study by Sprinkle (2000) looked at the difference between flat wage compensation to a compensation plan based on performance in situations, where the people taking part in the experiment have the possibility to gain experience and learn from feedback. This could be very relevant in real situations taking place in work life. The management of an organization may have to make decisions that are fairly similar to each other, but changing in various ways. The managers here have the possibility to become more experienced and learn from feedback, while trying to adapt to a changing market. The results showed that the group with an incentive to perform higher spent more time on the task than the flat wage group. They also performed overall better, but not in the first 15 tries out of the 60. Even after controlling the amount of time put into the assignment, there were a significant difference between the outcomes. This points to the fact that incentives accelerate the learning curve and gets the individuals to work harder and more intensive on the task. This also shows that experience and feedback might be necessary for incentives to help at more complex assignments. In this task the goal was clear; to score as high as you can with the information you receive. According to SDT (Gagné & Deci, 2005) a higher pay should lower the intrinsic motivation to perform the tests. This might not be relevant in a relatively short period, with clear objectives, as this one. It could be that the goals are, according to SDT, introjected and the individual starts to take the goals as their own. It could be that the individuals taking the tests did not find the tasks very interesting and the monetary goals and the challenges following it would increase the motivation according to Mossholder and Campbell (1980). The feedback that kept coming throughout the trials could have kept those taking the trials motivated if they felt competent (Gagné & Deci, 2005).

Assigning goals does not seem so easy to do. In the same way as goals can give the focus to shut out the irrelevant things happening around the assignment the same focus may negatively affect the wider picture necessary for creative "thinking outside the box" processes. It's so easy to focus too much on the goal, or reward, and miss out thinking about the best way to reach
it. This focus may also lead to unethical behaviour and cheating, which will lead to losses in the longer run. If all the student care about is the grade, then maybe that student is willing to cheat on the exam to achieve it, but miss out on learning anything. In the same way a corporation may have a quarterly report they are focusing on and might miss out on future rewards, when trying to reach immediate numbers.

How to assign goals, and how to reward them, seems to be a matter of what type of task is being performed. Since it seems to work on routine tasks, but not on creative tasks, the management should be careful when setting up those goals and rewards. The Self Determination Theory (Gagné & Deci, 2005) pointed to the importance of autonomy for the intrinsic motivation. According to this theory rewards, monitoring, and assigned goals should lower this motivation. Self–set goals, however, have been shown to increase performance just as much as assigned goals (Locke & Latham, 1990) and should not lower the intrinsic motivation (Gagné & Deci, 2005). Specific goals will in general lead to a higher performance, but with the exception of the easy goal compared to a "do your best" goal. Harder goals should be more satisfying to conquer, while easier goals should give more positive feedback (Locke & Latham, 1990).

The most effective way to use goals to increase the workers performance should be to have them personally involved in setting specific goals that are possible to reach. If the goals are too hard it might seem hopeless to try to reach them. If the goals are too easy they might seem boring and not challenging enough. Since the workers often have a varying degree of ability on a specific task, this could be problematic when using one goal for all. These goals are usually based on some standard of what could be expected on the same, or a similar, task. In environments, where the ability of the workers vary greatly this would mean that the goal setting is only optimal for some of the workers. At the same time the goal will be too easy for some while it is too hard for others. In the study by Jeffrey et al. (2012) these two types of goal settings were compared. The results showed that the results were higher for the lower ability individuals, when they were assigned ability based goals. The results amongst the low ability individuals in the group with one shared goal were also deteriorating later in the experiment, probably due to the negative feedback. Setting one goal for everyone is most likely easier than setting unique goals for every individual. There is the risk of putting someone in the wrong group because of faulty measurements and this would cause those people to not be optimally challenged by the goals, as well as the risk of stigma associated with being set in different groups on a workforce. One way to increase production even after reaching the set goals is to keep rewarding results above the expected. This would also take away the problem with being assigned a too easy goal. One way to set up goals would be to have reoccurring, individual, meetings with the employees where new goals are negotiated. As stated in the Goal Setting Theory (Locke & Latham, 2005), goals set by the individual have worked as well as goals set by someone else. In a meeting like this, statistics and previous performance could be analyzed before the employee have a choice between different goals, which then would lead to different rewards.
If an individual goal, or any kind of ability based goal, is to be implemented it is important to make sure the rewards are coherent with the goal setting. According to Equity Theory (Kassin et al. 2011) people will compare their ratio of contributions and benefits to the same ratio of the people around them. If specific goals are applied, then higher rewards should follow the higher goals or the workers would experience inequity.

**Conclusion**
To reward someone to increase motivation and performance might be right, or wrong, depending on the situation. On easy assignments, or when the way from start to finish can be followed by a step by step route, an incentive can increase performance. On more challenging tasks where the individual need creativity and where there is no given step by step route to follow, the performance is instead lowered (Amabile, 1996).

What is intrinsically motivating is an activity that is autonomous and makes the individual feel creative and competent. When someone else is making the individual do something, e.g. by rewarding behaviour, the intrinsic motivation is lowered (Deci, 1971). Assigned goals lowers the intrinsic motivation on interesting tasks, but may increase it on tasks that are not intrinsically motivating from the start (Mossholder & Campbell, 1980). Specific and hard goals lead to higher performance than easy and vague goals as long as the individual accepts it, meaning that they believe that they have a chance to reach it. Self-set goals are equally effective as assigned goals and should not lower the intrinsic motivation (Locke & Latham, 1990).

An assignment could be autonomously motivating if it is integrated into the idea of the self. For this to happen the individual must feel competent while doing it, feel as it has a purpose in relation to others, and be autonomous (Gagné & Deci, 2005).

The ratio between rewards and performance must be the same for the individual and the people that are around. Otherwise the individual will experience inequity. If the individual is underpaid compared to inputs this could result in a lower performance to even it out (Kassin et al., 2011).

The relationship between no pay and performance is that no monetary rewards should keep the individual intrinsically motivated to an activity. In creative assignments verbal, positive, feedback is better than monetary promises for finished tasks, because it will take the autonomous motivation out of the activity. On routine tasks incentives works well. A payment in general is necessary for people to be able to live, in a situation like this a flat wage payment works well if it is enough to live on. A performance based payment may however make the individual put more time and effort into the job. It is however important to not reward something and then remove the reward, because the worker will not want to do it without pay if the individual was once rewarded for doing it. The creativity may also be inhibited. There also have to be a fair ratio of performance and the performance based payment among workers to avoid inequity among them.
It is important for management to acknowledge these facts if they want to maximize performance for the workers. If it is possible it is positive to let them be autonomous. Self-set goals that are challenging should lead to the highest possible performance. Reaching challenging goals will make the individual feel competent and he or she will be motivated to continue. The most effective way to shape assignments and incentives is to make tasks that are as autonomous as possible. There should be individually set goals and fair rewards for reaching them. A suggestion is to have meetings with the worker, where previous performances is discussed and there are different levels of goals and rewards to choose from. If the individual have a chance to get more rewards for trying to achieve a more challenging goal, that is decided by the individual, this should lead to higher performances.

Method discussion

This thesis was done with a literature review method, since the effect of incentives on motivation and performance have been explored in many previous experiments and studies. The delimitation was not problematic, however necessary, to answer the proposed questions. The area of motivation have a vast amount of research and the delimitation to motivation in work settings required appropriate theories. The Equity Theory (Kassin et al., 2011) and Goal Setting Theory (Locke & Latham, 1990) were important for this thesis because they can be seen through real life work settings. In opposition to this the Self Determination Theory (Gagné & Deci, 2005) was relevant to the subject of motivation, although it is focused on well-being rather than the motivation in actual work settings. Using the latter to understand, and shape new, work situations is problematic, because it seems incompatible with corporate structures today, as well as with the other theories presented. Since it was done in laboratory settings it is unclear how it can be generalized to work settings. Looking at experimental studies and generalizing them to work settings may show the wrong results considering the possibility of lowering motivation over time since experiments usually look at performance over a short amount of time, when in work setting it is usually of value to perform over longer periods of time.

Generalizing Self Determination Theory (Gagné & Deci, 2005) to work settings might not be as valuable as some of the other theories. It may have been given too much space in the discussion, compared to how valuable it is in these settings, when compared with Goal Setting Theory (Locke & Latham, 1990).

The theories, as well as the articles, used in this review are all built upon peer reviewed articles, which gives it no cause to question their reliability.

Suggestions for further research

The different theories had interesting contrasts to each other since assigning a goal and rewarding them seem necessary in work settings. At the same time Self Determination Theory (Gagné & Deci, 2005) highlighted the negative effects this had on the individuals’ feeling of autonomy. Because of this there were only studies in laboratory settings, which made it unclear of how it could be generalized to work settings. Further experiments could be done in
actual work settings and the effectiveness of the employees could be compared before as well as after the changes. Work assignments that are completely autonomous do not seem possible, there are however various ways of making work more autonomous. Today in some work settings the employees are being monitored and expected to not do a good job if they are given the opportunity. Studies could be done, where overall production over extended periods of time is measured and compared. In professions, where it is possible the workers could get the chance of deciding themselves when to get to work as well as to leave for the day. If combined with personally set, and challenging, goals with different levels of rewards the workers could possibly perform better if they felt as they could plan their day as they want to.
References


### Article

**Title:**
Large stakes and big mistakes

**Author:**
Ariely, D., Gneezy, U., Loewenstein G., Mazar N.

**Journal:**
The Review of Economic Studies Vol. 76, No. 2

**Year:**
2009

### Perspective

Study on how different levels of rewards affect the performance.

### Problem/purpose

To explore how different levels of monetary incentives affect the results in different assignments.

### Method

Experimental study administered on 87 individuals in rural India. 73.6% men and 26.4% women. Individuals were randomly assigned to three groups with low, medium, and high rewards for finishing a task. Everyone did six assignments in the categories memory, creativity and motor skills.

### Results

No difference in results between the groups with the low, and medium rewards. The individuals in the group with the high reward performed worse in every assignment.

### Discussion

Interesting example of how increased motivation can worsen the performance. It could be hard to generalize the results on educated people in corporations in other countries. The high reward was equal to an average monthly pay for the participants which gives an interesting insight in performance when there is a chance to get a big reward, at the same time it can be hard to generalize to real life situations since those situations usually do not have rewards this big.
<table>
<thead>
<tr>
<th>Article</th>
<th>Perspective</th>
<th>Problem/purpose</th>
<th>Method</th>
<th>Results</th>
<th>Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title:</td>
<td>Study on differences between performance–based payment and flat wage payment.</td>
<td>Study on the difference between flat wage payment and performance–based payment in situations when the participants have the possibility to learn from feedback.</td>
<td>Experimental study administered on 40 students randomly assigned to one of two groups where one group had a flat wage payment for finished assignments, while the other group had a performance–based reward. The students got feedback during the assignment, which helped them perform better between different trials.</td>
<td>The group with the performance–based rewards put more time into the assignment and had a better result even after the time put into the assignment was controlled. No significant difference in results for the first 15 out of 60 trials.</td>
<td>Those with the performance–based payment put more time into the assignment, which was expected. The results were better even after the time put into the assignment was controlled. The fact that there was no difference in the results in the first 15 out of the 60 trials could mean that feedback and a chance to learn is necessary to increase performance.</td>
</tr>
<tr>
<td>Author:</td>
<td>Sprinkle, G.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year:</td>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Article</td>
<td>Perspective</td>
<td>Problem/purpose</td>
<td>Method</td>
<td>Results</td>
<td>Discussion</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>----------------</td>
<td>--------</td>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>Title: Effects of externally mediated rewards on intrinsic motivation</td>
<td>Study on the affects that rewards have on motivation.</td>
<td>To explore how extrinsic rewards affect the intrinsic motivation to perform an assignment.</td>
<td>Experimental study administered on 24 students for an hour, three days in a row. The assignment was to form a cube as cubes on different pictures presented at the start of the assignment. The real purpose of the experiment was to observe what the students chose to do during the free time between trials. The experiment leader manipulated the students by rewarding some for the assignment, while not rewarding some, and then withdraw the rewards.</td>
<td>In the beginning all students spent time on the cubes even during the pause between trials. When one of the groups was rewarded for finishing assignments their motivation to play with the cube during the break increased. When the reward was withdrawn on the last day the group that was earlier paid spent far less time to play with the cubes during the break, even far less than the first day when they was not paid.</td>
<td>This experiment show how extrinsic rewards temporarily increases motivation to later decrease it when the rewards are withdrawn. It gives an interesting insight in how the intrinsic motivation works and how an individual evaluate assignments that someone is willing to pay for.</td>
</tr>
<tr>
<td>Article</td>
<td>Perspective</td>
<td>Problem/purpose</td>
<td>Method</td>
<td>Results</td>
<td>Discussion</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>----------------</td>
<td>--------</td>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>Title: The influence of strength of drive on functional fixedness and perceptual recognition</td>
<td>A study on how rewards affect creativity.</td>
<td>To explore how rewards affect the performance in assignments where the participant is affected by functional fixedness and need creativity to solve the problem.</td>
<td>Experimental study administered on 128 male students. The students were given a box of thumbtacks, a box of matches, and a candle. The assignment was to mount the candle on the wall. The solution was to put the box the thumbtacks were in to the wall with the thumbtacks and put the candle in the box. Trials both with the thumbtacks in the box, and the thumbtacks outside the box was done. A reward was promised to those that finished the assignment the fastest and a bigger reward to the fastest one. The control group did not have an incentive</td>
<td>In the first case the individual will see the box just as a container for the thumbtacks but this functional fixedness disappears when the thumbtacks are outside the box. When the thumbtacks was outside the box, the group with the incentive solved the problem faster. When the thumbtacks was outside the box, and they needed creativity to solve the problem, the group with the incentive was four minutes slower to solve the problem than the group without an incentive.</td>
<td>Interesting to see how increased rewards can make the individual focus too much on the reward to miss out on the best way to reach it. Maybe creative assignments in the work place should not be rewarded in the same way.</td>
</tr>
<tr>
<td>Article</td>
<td>Perspective</td>
<td>Problem/purpose</td>
<td>Method</td>
<td>Results</td>
<td>Discussion</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>----------------</td>
<td>--------</td>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>Title: Performance Effects of an Ability-Based Approach to Goal Assignment.</td>
<td>A study on how different goal settings affect the performance.</td>
<td>To explore the difference in performance between a one-goal-for-all goal setting and individual goals</td>
<td>Experimental study administered on 138 students that were randomly assigned to two groups, where the individuals in one group had the same goal to reach while the other group had individual goals to reach depending on how competent they were on the assignment.</td>
<td>Those in the group with individual goals thought the assignments were more fun and the goal was easier to reach. Those with a low competence performed slightly better when they had individual goals while those with high competence had no difference in performance.</td>
<td>It is interesting to see how most organizations have a standard goal setting that is the same for everyone when it's often people with different competence trying to reach it. This can be negative when the goal is optimal for just a minority of the workforce. Those with a low competence get negative feedback which ruins the motivation. At the same time those with a high competence have a goal that is not challenging enough.</td>
</tr>
<tr>
<td>Author: Jeffrey, S., Schulz, A., &amp; Webb, A.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year: 2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Article</td>
<td>Perspective</td>
<td>Problem/purpose</td>
<td>Method</td>
<td>Results</td>
<td>Discussion</td>
</tr>
<tr>
<td>---------</td>
<td>--------------</td>
<td>----------------</td>
<td>--------</td>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>Title:</td>
<td>Why some people chose to work without pay</td>
<td>To explore why some people chose to work, that is not intrinsically motivated, without getting paid.</td>
<td>Questionnaire. The questions tried to answer why some chose to give free field support on an Internet forum to users that needed help with the software.</td>
<td>Most questions on the forum was answered. The reason to help out with the product was the joy of the work itself, that the programmers needed the software themselves, and they could get a higher status among those involved in the project. Those that provided field support did it because they could learn something by reading questions, and those answering already knew the answers. This meant that it was not a lot of work.</td>
<td>It is interesting to the discussion of the thesis because it explains how some people chose to work without pay. Some assignments have other rewards than payment, for example the individual can feel better by doing it. Different assignments can be discussed and see how they can be made more intrinsically motivating.</td>
</tr>
<tr>
<td>Author:</td>
<td>Lakhani, Karim R, &amp; Von Hippel, Eric.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journal:</td>
<td>Research Policy, 32(6), 923–943.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year:</td>
<td>2003</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>