

# strike in space case study essay sample



This case centers on the original 3 Skylab missions that began in 1973 following a successful series of Apollo missions starting in the 1960's. NASA viewed the Skylab missions as logical successors of the Apollo missions and each of the Skylab missions picked up where the prior one left off. The primary focus of the missions was to determine if humans could in fact live comfortably for extended periods of time in weightless conditions and prior to Skylab, there was very little solid research done. Each of the Skylab missions would be longer in length with Skylab 1 starting with 4 weeks followed by Skylab 2 at 8 weeks and finally Skylab 3 at 12 weeks. Every detail of the astronauts' life in space was to be recorded for future examination and there was little left to chance.

Virtually every minute of each day was spelled out by the flight control directors on the ground and the rigid timelines were to be followed to the letter. The astronauts were to conduct experiments on themselves (exercise) as well as other scientific fields (solar astronomy, botany, biology, metals processing, etc). NASA not only wanted to study the experiments given to the astronauts but they also had designs on increasing their federal funding by showcasing the commercial possibility of a manned outpost in space. NASA therefore was trying to serve two purposes with the Skylab missions both of which they felt could coexist with each other in their pursuit for scientific answers.

Each of the Skylab missions was manned by 3 astronauts chosen from their existing space program. The first two Skylab missions were manned by astronauts who had already been to space during the Apollo missions while the Skylab 3 crew was new to space and true weightlessness. The first

Skylab crew was able to settle into their routines at a relatively normal pace being as there hadn't been a benchmark set yet. The second Skylab crew was a bunch of over-achievers and set that bar much higher than the first crew. The final Skylab crew quickly found out that they had an extremely difficult time living up to the expectations set by Skylab 2 and immediately showed signs of frustration. It is in this frustration that the crew of Skylab 3 finally said "enough" and went on "strike" on December 27, 1973. This case centers on what happened to the Skylab 3 crew and how they came to such a drastic decision.

### Analysis

The Skylab mission provides an outstanding opportunity to study the effects of motivation on job performance. The vastly different experiences and outcomes of the three crews subject to the same physical conditions allow for comparison and the study of the management variable. While all three Skylab crews faced unprecedented challenges, the third crew experienced unique problems of motivation. The primary contributor to the morale issues affecting the third crew was job design. Mission control failed to adequately establish four of the five core job characteristics. Most notably, the astronauts of the third crew had no autonomy. According to McShane and Von Glinow, "jobs with high levels of autonomy provide freedom, independence, and discretion in scheduling the work and determining the procedures to be used to complete the work."

In contrast, Carr and his crew had almost no input into how they did their jobs or spent their day. "Mission control scheduled the astronauts as tightly as possible" and "prided themselves on knowing more than the crew did

about how their time could and should be used.” ii Without job autonomy, the astronauts did not feel experienced responsibly, the feeling that he or she is personally accountable for the outcomes of their efforts. Disassociated from the mission, the astronauts were able to justify the strike as they were not personally invested in the outcome of their work at Skylab. In contrast, the second crew, who had much more autonomy, willingly chose to spend “ most of their free time doing experiments” iii because of their higher levels of experienced responsibility.

The astronauts also lacked a sense of task identity, or the degree to which their job required completion of a whole or identifiable piece of work and task significance, or the degree to which their jobs affected society as a whole. Many new experiments were added at the last minute such that the third crew didn’t have time to become familiar with them as the previous crews had done. Without an understanding of the purpose of the experiments they were spending their time on, they couldn’t appreciate the meaningfulness and significance of their mission. The only source of meaningfulness for the astronauts was skill variety, a job characteristic that is inherent in the work of an astronaut.

Finally, while the astronauts received frequent and regular job feedback from mission control, that feedback was almost always negative and, from the beginning, gave the third crew the “ inexplicable and nagging sense of being behind.” Carr and his team did not receive feedback on the positive benefits of the experiments they were conducting nor their accelerated schedules relative to the first and second crews. In contrast, the second crew regularly asked for feedback from the medical technicians on “ how they were doing

compared with the first crew” and noted that the comparison “ always gave us a good feeling, always let us feel that we were moving along.” iv The third crew’s lack of complete knowledge of the results of their efforts undoubtedly contributed to a reduction in work effectiveness. Job enrichment could have helped motivate the third crew and increase their job satisfaction.

In fact, the astronauts specifically asked for more responsibility for scheduling coordinating, and planning their own work prior to the strike. Recognizing the importance of job enrichment, Gibson, the science pilot for the third crew noted that “ in the future the ground should give the astronauts the bare framework of a schedule, together with a sort of shopping list of things for them to do, and then let the guys on board figure out the best way for doing them. v” By giving the third crew more control over how they spent their time, Mission Control could have imparted a sense of empowerment to the astronauts and helped them to feel more self-determination, meaning, competence and impact in their work. Instead, NASA’s mission leaders maintained all control. The crew was not given adequate time to adapt to the environment and make mistakes.

A more learning oriented culture and job empowerment could have improved job satisfaction and organizational commitment as well as possibly averting the strike. The challenges encountered by the third Skylab crew can also be analyzed from the perspective of the four-drive theory of motivation. “ The main recommendation from four-drive theory is to ensure that individual jobs and workplaces provide a balanced opportunity to fulfill the drive to acquire, bond, learn, and defend. On Skylab, the first and second crews had this opportunity. One of the most significant drivers of the first and second crews

was the drive to acquire as evidenced by the friendly competition between them.

This competition also fed the drive to bond as the captains of those crews had a relationship that was strengthened by their shared experience. The second crew was also able to satisfy their drive to learn thanks to the infectious passion and enthusiasm of their science pilot as well as personal time for exploring their environment. The experiences of the third crew, however, placed too much emphasis on the drive to defend as they constantly felt the need to defend their pace of work and mistakes from mission control. Their experience helps illustrate the importance of keeping the four drives in balance in the workplace.

#### Evaluation of Alternatives

A number of options remain as to stop the strike or prevent future ones from occurring. One perspective would be to better assess the psychological characteristics of the astronauts going into space. A failure in the relationship between ground control and the astronauts definitely occurs, which points to the inability to work with others. Social management qualities are inadequate. Perhaps NASA needs a fuller EQ assessment when determining eligibility to go into space. Also, stress tests and self-management tests should also be more utilized. A primary concern of the astronauts is the health risk of not having enough time to exercise. When not exercising in no gravity, the body's systems diminish. Originally the mission was to have astronauts live healthy in space. Now the mission is more experiment driven due to budget constraints.

The astronauts went on strike to mitigate their living conditions. From mission controls perspective, astronauts are supposed to be self-driven people. They, by job description, work meticulously and also have the discipline to work long hours. Skylab 2 set the tone to be the best. Skylab did have big expectations to live up to. However, these high expectations should be viewed attainable, and Skylab 3 should even try to surpass some of their predecessors' accomplishments. The last crew cannot justify one day of strike and the immense amount of money it cost to send those astronauts up there. The health of the astronauts is the foremost concern of all parties, but merely giving up some less pertinent experiments to make time for exercising would solve this issue.

This example of a self-management shortfall led to much frustration and an eventual strike. Furthermore, motivation is definitely lacking in Skylab 3. Taking the side of mission control, as an alternative approach, the astronauts lacked the enthusiasm and passion in their jobs to carry out at peak effectiveness and peak efficiency. Mission Control could have done many things differently. However, carefully picking the right people for the job seems the most important. The self-concepts and past experiences of the astronauts led to a “quirky” crew member, and inexperience among the astronauts. None had been to the moon or had been in space before. Without the experienced leadership in the captain and other members of Skylab group, behavior of the crew members was more unpredictable. Accordingly, ground control would have picked crew members with more experience, more enthusiasm, and more passion in their career field.

## Recommendation

It is recommended that there be more open communication and feedback between the crew and the control unit on the ground. Mission control should be more supportive and should treat each crew member as a human, not as a machine. Additionally, commanders should receive management and motivation training to enhance their ability to support and motivate the crew. NASA may also want to develop standards for crew selection to ensure a mix of personalities that will have a positive effect on each other.

Astronaut's jobs should be enriched so that they have more control over their schedules and how or when they perform experiments. Mission control can provide astronauts with a prioritized list of projects and empower the crew to decide how best to complete them. Time must be allotted for exercise, stowage and personal time to accommodate workers' health and morale.

## Case Update

The third crew was the last manned mission to Skylab and the only space mission flown by Carr, Pogue and Gibson. Although NASA considered sending a fourth crew to push the station to a higher orbit and extend its usable life, this was ultimately abandoned in order to channel the funds to the Space Shuttle program. vi Following the strike in space, “ ground and flight crews resorted to a time-honored means of resolving the problem: they talked, openly and frankly.” vii The crew's work schedules were adjusted and the astronauts were given more time to relax. According to NASA, both crew performance and communication with Mission Control improved almost



immediately. By the end of the manned period, the third crew had completed even more work than had been planned.