**Systems Thinking Workshop**

**Problem Solving Activity – Instructions & Example**

**Problem Statement:** *List the problem being solved. This should be provided to students. Depending on the subject, a biography may need to be included. In the following example, a biography is not necessary in solving the problem.*

The OSU men’s basketball coach is trying to improve his team’s scoring by next week’s game.

**Goal:** *What is the desired result of solving the problem?*

Increase the number of points scored in next week’s game.

**Elements:** *Lead a discussion of some of the elements of the system. Then list five elements of the system being examined - these should be provided to students. In the example below, the system being examined is the OSU men’s basketball program.*

* Player skill
* Teamwork
* Player health
* Fan support
* Strategy

**Distinctions:** *Determine which sub-elements make up each element. All the sub-elements are listed in one table and the elements are below. List the sub-element with its related element in the designated space. Each sub-element can only be paired with an element* ***once.*** *The process is displayed below for the element “Strategy.” The sub-elements should be provided to students. It is not necessary to have the same number of sub-elements for each element in the system (ideally each element should have 3-5 sub-elements).*

|  |  |  |
| --- | --- | --- |
| Reviewing Game Tape | Injuries | Locker Room Culture |
| Playbook | Recruiting | Practice Drills |
| Game Location | Lineup/Rotation | Date of Game |

Strategy: Reviewing game tape, playbook, lineup/rotation, practice drills

*\*in a complete activity, and if time permits, this step should be completed for each element*

**Relationships:**

1. *Fill in the table with all of the elements for the system.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Elements** | **Impact**  | **Can this be controlled? Y/N** | **Level of Control** | **Score** |
| Player Skill |  |  |  |  |
| Strategy |  |  |  |  |
| Teamwork |  |  |  |  |
| Player Health |  |  |  |  |
| Fan Support |  |  |  |  |

1. *Rank each element based on its perceived impact on the system (1 being the highest impact). There is no correct answer. The ranking is based on how the person solving the problem perceives the impact.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Elements** | **Impact**  | **Can this be controlled? Y/N** | **Level of Control** | **Score** |
| Player Skill | 1 |  |  |  |
| Strategy | 3 |  |  |  |
| Teamwork | 2 |  |  |  |
| Player Health | 5 |  |  |  |
| Fan Support | 4 |  |  |  |

1. *Ask if you can control each element. If yes, put a Y and continue with steps 4 and 5. If no, put a N and put a dash mark in “Level of Control” and “Score” columns.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Elements** | **Impact**  | **Can this be controlled? Y/N** | **Level of Control** | **Score** |
| Player Skill | 1 | N | - |  |
| Strategy | 3 | Y |  |  |
| Teamwork | 2 | Y |  |  |
| Player Health | 5 | Y |  |  |
| Fan Support | 4 | N | - |  |

1. *Rank the remaining elements based on how much you can control them (1 being the highest level of control). Make sure to take into account the timeline when completing this step. In this example, the elements are ranked based on how much they can be controlled within a week’s time.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Elements** | **Impact**  | **Can this be controlled? Y/N** | **Level of Control** | **Score** |
| Player Skill | 1 | N | - |  |
| Strategy | 3 | Y | 1 |  |
| Teamwork | 2 | Y | 2 |  |
| Player Health | 5 | Y | 3 |  |
| Fan Support | 4 | N | - |  |

1. *Score the remaining elements by multiplying its impact score by its level of control score.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Elements** | **Impact**  | **Can this be controlled? Y/N** | **Level of Control** | **Score** |
| Player Skill | 1 | N | - | - |
| Strategy | 3 | Y | 1 | 3 |
| Teamwork | 2 | Y | 2 | 4 |
| Player Health | 5 | Y | 3 | 15 |
| Fan Support | 4 | N | - | - |

1. *Choose the element with the* ***lowest*** *total score.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Elements** | **Impact**  | **Can this be controlled? Y/N** | **Level of Control** | **Score** |
| Player Skill | 1 | N | - | - |
| Strategy | 3 | Y | 1 | 3 |
| Teamwork | 2 | Y | 2 | 4 |
| Player Health | 5 | Y | 3 | 15 |
| Fan Support | 4 | N | - | - |

1. *Go back to the “Distinctions” section and fill in the second table with the element’s sub-elements. In this example strategy has the lowest score therefore its sub-elements will be used in the table below.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sub-Elements** | **Impact**  | **Can this be controlled? Y/N** | **Level of Control** | **Score** |
| Reviewing game tape |  |  |  |  |
| Playbook |  |  |  |  |
| Practice Drills |  |  |  |  |
| Lineup/Rotation |  |  |  |  |

1. *Follow steps 2-5 with the sub-elements.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sub-Elements** | **Impact**  | **Can this be controlled? Y/N** | **Level of Control** | **Score** |
| Reviewing game tape | 4 | Y | 2 | 8 |
| Playbook | 1 | Y | 4 | 4 |
| Practice Drills | 2 | Y | 3 | 6 |
| Lineup/Rotation | 3 | Y | 1 | 3 |

1. *Choose the sub-elements with the* ***lowest*** *total score.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sub-Elements** | **Impact**  | **Can this be controlled? Y/N** | **Level of Control** | **Score** |
| Reviewing game tape | 4 | Y | 2 | 8 |
| Playbook | 1 | Y | 4 | 4 |
| Practice Drills | 2 | Y | 3 | 6 |
| Lineup/Rotation | 3 | Y | 1 | 3 |

**Solution:** *Based on the sub-element that was chosen in the above step, provide a possible solution.*

Possible solutions:

* Choose a player from the bench to start as the center.
* Have as many seniors start as possible.
* Have two complete rotations that will sub into the game every 5 minutes.