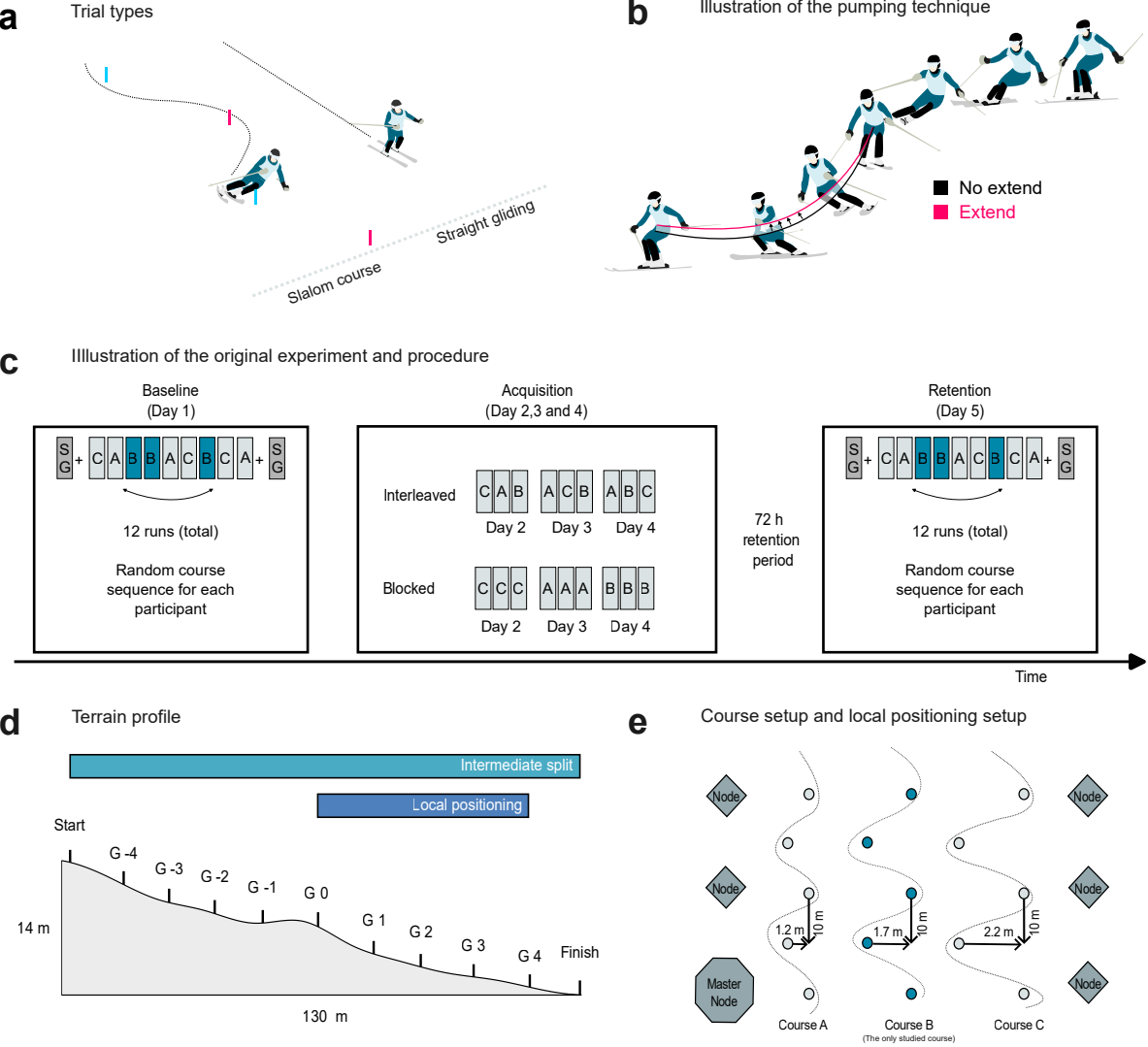
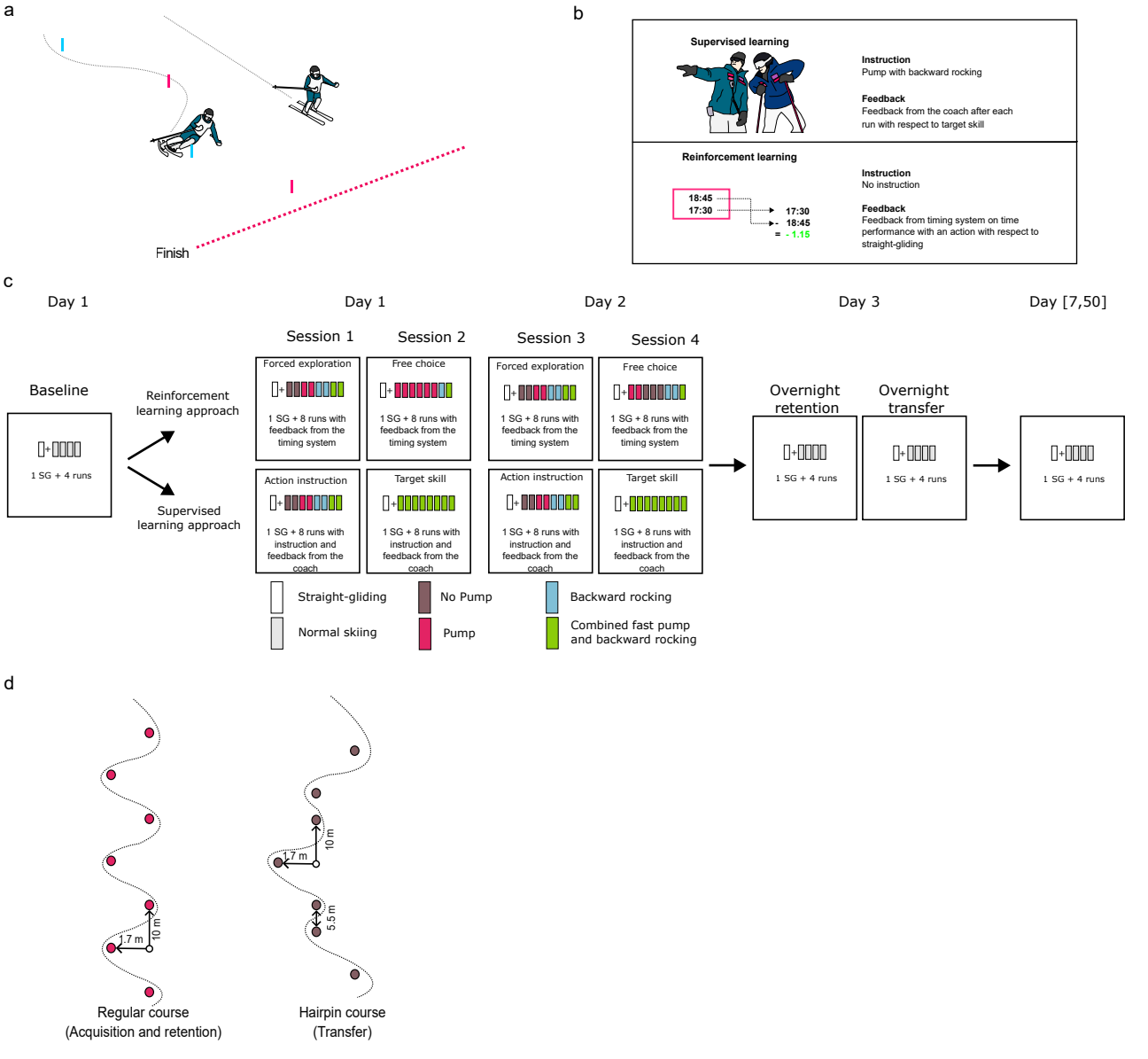

a
Trial types
Slalom course
Straight gliding
b
Illustration of the pumping technique
No extend
Extend
c
Illustration of the original experiment and procedure
Baseline
(Day 1)
SG + C A B B A C B C A + SG
12 runs (total)
Random course sequence for each participant
Acquisition
(Day 2,3 and 4)
Interleaved
C A B
A C B
A B C
Day 2
Day 3
Day 4
Blocked
C C C
A A A
B B B
Day 2
Day 3
Day 4
72 h retention period
Retention
(Day 5)
SG + C A B B A C B C A + SG
12 runs (total)
Random course sequence for each participant
Time
d
Terrain profile
Intermediate split
Local positioning
Start
G -4
G -3
G -2
G -1
G 0
G 1
G 2
G 3
G 4
Finish
14 m
130 m
e
Course setup and local positioning setup
Node
Node
Master Node
Node
Node
Node
1.2 m
10 m
1.7 m
10 m
2.2 m
10 m
Course A
Course B
(The only studied course)
Course C


a
Finish
b
Supervised learning
Instruction
Pump with backward rocking
Feedback
Feedback from the coach after each run with respect to target skill
Reinforcement learning
18:45
17:30
17:30
18:45
= - 1.15
Instruction
No instruction
Feedback
Feedback from timing system on time performance with an action with respect to straight-gliding
c
Day 1
Day 1
Day 2
Day 3
Day [7,50]
Session 1
Session 2
Session 3
Session 4
Baseline
1 SG + 4 runs
Reinforcement learning approach
Supervised learning approach
Forced exploration
1 SG + 8 runs with feedback from the timing system
Free choice
1 SG + 8 runs with feedback from the timing system
Forced exploration
1 SG + 8 runs with feedback from the timing system
Free choice
1 SG + 8 runs with feedback from the timing system
Action instruction
1 SG + 8 runs with instruction and feedback from the coach
Target skill
1 SG + 8 runs with instruction and feedback from the coach
Action instruction
1 SG + 8 runs with instruction and feedback from the coach
Target skill
1 SG + 8 runs with instruction and feedback from the coach
Overnight retention
1 SG + 4 runs
Overnight transfer
1 SG + 4 runs
1 SG + 4 runs
Straight-gliding
Normal skiing
No Pump
Pump
Backward rocking
Combined fast pump and backward rocking
d
7 m
10 m
Regular course
(Acquisition and retention)
7 m
10 m
5.5 m
Hairpin course
(Transfer)